

• APRIL 1959

BUTANE-PROPANE

A CHILTON PUBLICATION

News

Sizing Systems:

1. Hot water
2. LPG piping

Refrigerator Outlook

HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

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... and consider **WARREN**

We urge you to make a thorough analysis of ALL the factors which make a contract with Warren the most advantageous one for YOU.

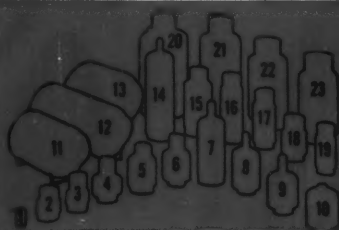


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KEY TO CYLINDERS IN PHOTO

Key No.	Model No.	Capacity (Lb. Propane)
1—	T-91	.91
2—	PC-3PL	5
3—	PC-5	5
4—	PC-11	11
5—	PC-20APL	20
6—	PC-20A	20
7—	RC-40A	40
8—	RC-25	25
9—	RC-20	20
10—	CC-20A	20
11—	200H-22	200
12—	420H-24	420
13—	420H-29	420
14—	RC-100A-DB	100
15—	PC-60ATR	60
16—	H-43L	43.50
17—	H-33L	33.50
18—	H-20L	20
19—	H-14LV	14
20—	PC-420A	420
21—	PC-300A	300
22—	PC-200A-22	200
23—	PC-150A-20	150

How many of these LP-Gas Cylinders do you use?

Shown here is a representative selection of Hackney LP-Gas Cylinders chosen from the much larger *complete* Hackney line.

Each cylinder represents a profitable service opportunity for LP-Gas dealers. In fact, many dealers may have as many as 112 different markets for LP-Gas right in their own marketing area!

Hackney's full line helps get new business

The chances are you can get more business, too, regardless of the type of cylinder required, because Hackney has the cylinders for you—one to 420 pounds. Many are available immediately from stock. All are lightweight, two-piece cylinders, made the Hackney way—deep drawn from cold metal for uniform wall thickness, strength without excess weight.

For a list of uses for LP-Gas in the home, on the farm, in industry and commerce, write at once to:



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Manufacturer of Hackney Products

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systems



fuel tanks for trucks and tractors



lift truck tanks



tank trucks



transport



bulk storage tanks

LP-GAS CONTAINERS FROM ONE POUND TO 30,000 GALLONS

is gas loss a problem?

do you sell all you buy?



**vapor
metering
will improve your
profit picture**



Vapor metering will uncover and cut those mysterious losses to a small percentage by providing a final, positive record against which to check the gas you sold against the gas you purchased.

Too, vapor metering will provide you with better inventory control, planned truck routing, systematic billing, expanded capacity and more efficient operations.

Get full facts by writing for bulletin ADV-41, Rockwell Manufacturing Co., Pittsburgh 8, Pa.

The Vapor Meters You Need!

Rockwell vapor meters are compact, economical, convenient. They have a strong, safe outer case of rust-proof aluminum. Mounting brackets are supplied to simplify installation. They are small in size but big in capacity—up to 240,000 btu's per hour.



Dearborn *Quality in Action...*

is your best package of

PROFIT



THRU THE WALL

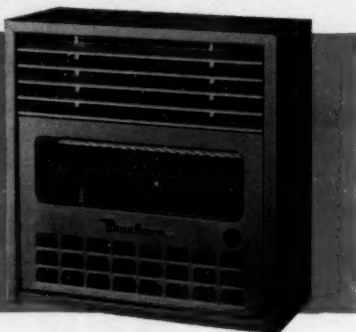
The NEW Dearborn Sealed-Vent

WALL HEATER
This amazing new Dearborn Sealed Vent thru-wall gas area heater introduces a new dimension in beauty and safety! Extremely simple installation. Expertly and tastefully designed by the makers of the outstanding Dearborn Regency, it will please the eye—provide safety and comfort for any customer. It is an outstanding example of Dearborn design and engineering bringing you even more *quality-in-action*.

NEW from Dearborn, the

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unvented wall heater is a leader almost overnight! Rated at 10,000 BTU, the "Clip-on" is just right for bathroom, bedroom, utility room, kitchen, small office, or any other small space. Available in white or famous Dearborn coppertone. Features cool safety cabinet, Hi-Crown cast iron burners, forward heat flow, stainless steel radiant, pilot light and delightful beauty of appearance. Destined for tremendous volume.



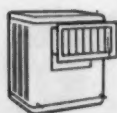
From the superb new Sealed-Vent, the beautiful Regency, and the smart new Crest series to the smallest new star, the "Clip-on" wall heater, Dearborn is the standard of quality among gas area heaters. With improvements and new products being

introduced as part of Dearborn's *Quality-In-Action* 1959 program, every Dearborn dealer is assured of greater profit. More than ever, in 1959, you'll be glad you're selling Dearborn!

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SATELLITE PORTABLE COOLER



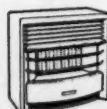
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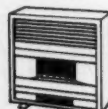
CLIP-ON HEATER



AIR COOLER



UNVENTED HEATER



VENTED HEATER



WALL HEATER



A CHILTON PUBLICATION

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APRIL 1959

BUTANE-PROPANE

News

Volume 21-Number 4

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It's only natural... that the maker of the world's finest thermostats... also makes the world's finest water heater controls. Now all new, with or without built-in pressure regulators.



DELUXE MODEL, V5331. Available with long or short element or tube— with or without pressure regulator.



STANDARD MODEL, VS130. Available with long or short element or tube, with or without pressure regulator.

EXTRA BENEFITS
• Safe lighting interlock
• Universal Duofilt Pilot filter

Honeywell



First in Control



LITTLE JOE
Says:

Go FISHER

1



**TYPE
D134**

**INCREASE FILLING RATE
SAVE MONEY
DELIVER GREATER GALLONAGE
PER MANHOUR**

- ▶ Fast filling with low pressure drop.
- ▶ Seals gas-tight under all operating conditions.
- ▶ Maximum free area and smooth contour for high sustained flow.

3



**TYPE
F108**

**LETS YOU WITHDRAW LIQUID CONTENT
OF TANK AT MINIMUM COST**

- ▶ An entirely new locked type excess flow check valve.
- ▶ No additional fittings needed other than pipe plug.
- ▶ Plug can be removed—hand valve connected for liquid withdrawal—even with liquid in container.

2

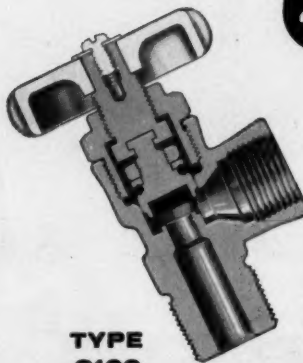


**TYPE
E100**

**KEEP VAPOR EQUALIZING RATE UP TO PAR
WITH LIQUID FILLING CAPACITY**

- ▶ Built to withstand severest service.
- ▶ Upper portion can be removed with tank under pressure.
- ▶ Seals gas-tight under all operating conditions.

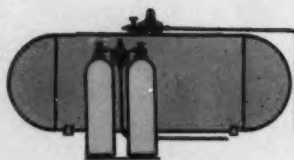
4



**TYPE
C100**

**VAPOR SERVICE
LINE SHUT-OFF
VALVE**

- ▶ Packless type construction for trouble-free service.
- ▶ Positive opening and closing.



IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD . . . CHANCES ARE IT'S CONTROLLED BY . . .

when you want fittings fast!

**TYPE
H235**



5

SAFETY RELIEF VALVE

Protects against excessive pressure on container.

Set and sealed at the factory.

**TYPE
J411**



6

FIXED LIQUID LEVEL GAUGE

Determines maximum filling capacity of container.

Has instruction dial that indicates when to "Stop Filling."

- **Finest Quality**
- **Dependable Delivery**
- **Guaranteed Performance**

Your Fisher representative is always on the job when you want fast service on LP-Gas equipment. Leading LPG operators from coast to coast in every section of the country have found that they are far ahead by specifying Fisher. Remember, there's a Fisher representative near you. Depend on Fisher to give you top quality, fast service with a complete line of LPG fittings.

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Nor-Tex**BIGGER
PAYLOAD**

DELIVERY UNITS

2500 WG Units Now Weigh Under 23,000 lbs. Loaded!**STANDARD TWIN • PAYLOAD SPECIAL • CUSTOM TWIN • DE LUXE TWIN**

Nor-Tex presents the newest development in sleek, LIGHT-WEIGHT, stream-lined, twin or single barrel LPG Delivery Units and again Nor-Tex is FIRST with ALUMINUM SKIRTING and CABINETS and engineering designs which have reduced over-all weight. 3000 WG units and over are also available for use on cab over or cab forward trucks and are still within the 18,000-lb. axle limit.

Nor-Tex Custom units haul "extra" gallons each trip! You deliver "extra" gallons faster with Nor-Tex custom designed high flow plumbing. You take fewer hours and travel less miles to deliver a gallon of gas. For day in, day out efficiency, durability, payload, fast loading, high rated delivery, perfect balance and appearance Nor-Tex delivery equipment can't be beat!

Ideal In States Imposing Ton Mile Tax

Nor-Tex TRANSPORTS

You can now haul MORE GAS and LESS STEEL than ever before with skillfully engineered, smart looking, streamlined Nor-Tex transports of T-1 and A-202 steel. These easy-to-maneuver, road-tested units are hauling more gas and substantially boosting profits for users everywhere. Nor-Tex transports are safe and dependable . . . built by men with years of bulk plant experience. May we help you? Phone, wire or write today! Interested attention, experienced assistance and helpful suggestions are yours for the asking.

We Are Truck Distributors

As authorized new truck distributors Nor-Tex can save you hundreds of dollars on Internationals . . . Chevrolets . . . Fords and GMC's. Order any unit you need. You can't beat a Nor-Tex deal for all around value.

NORTH TEXAS TANK CO

WRITE, WIRE
OR PHONE
FOR PRICES



National Sales Agents for

NORTH TEXAS



Nor-Tex ROCKET

Boosting LP Gas Sales Everywhere

New 1000 and 2000 WG Nor-Tex "Rockets" (strategically placed for best distribution) will substantially boost year 'round sales and quotas for bulk plants everywhere. Makes an excellent attention compelling ad to attract LPG customers. Large, enclosed cabinet at base, with convenient arrangement of fittings, is flexible to any type of installation. Complete self-contained unit (pump-valves-meter-strainer-hose) occupies only 72" diameter.

Completely Flexible

Nor-Tex Rocket Service Stations can be used as storage with any type or make of dispenser... installed on base of rocket or on an island.

STRONGEST WELD

EXTRA STRENGTH

Custom Made Hood

Multi-Valve

Rego Regulators



Internal Relief Valve
On All STAR Systems

HITCH YOUR PROFITS TO A STAR

- ★ Can't be beat for Quality... Features... Design or Price.
- ★ Nor-Tex construction exceeds all safety requirements
- ★ Thoroughly buffed and cleaned for finest appearance.
- ★ The Nor-Tex STAR is completely fitted and ready for use.
- ★ Bottom outlets are standard on all above ground tanks.
- ★ Immediate delivery on one Nor-Tex STAR or a truckload.

2% - 10 days, on truckload lots delivered in our trade area or ask about our finance plan.

LOOK TO Nor-Tex For ALL Your LPG NEEDS



One Nor-Tex Call
Gets It All!

JORDAN GAS SERVICE
BUTANE CENTRE, ALABAMA PROPANE

Nor-Tex
LOW COST
Financing

A PLAN TO MEET EVERY NEED

TANK CO.

P. O. BOX 1219
DENTON, TEXAS
DUpont 2-5416

On time on **FIRESTONES!**

They cut costs on LP-Gas deliveries

Whether you operate one truck or twenty trucks, count on Firestone Rubber-X, the longest wearing rubber ever used in Firestone truck tires. It's yours with every Firestone, for extra trouble-free deliveries and lower truck tire costs.

And along with new long-wearing tire rubber, all Firestones bring you Firestone S/F (Shock-Fortified) cord for still more stamina and dependability. No wonder more and more truck owners like yourself find it good business, always, to buy Firestones when replacing old tires—and to specify Firestones on all new trucks. Ask about them today at your nearby Firestone Dealer or Store—your headquarters for fast, reliable service!



TRANSPORT*

SUPER ALL TRACTION*

*FIRESTONE T.M.



LOOK FOR NEW LOW COSTS PER MILE WITH LONG-WEARING FIRESTONE TRUCK TIRES

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Firestone
BETTER RUBBER FROM START TO FINISH

BUTANE-PROPANE News

By NEIL REGEIMBAL

Washington Editor



BPN

Washington Report

From BUTANE-PROPANE News Washington Bureau

Congress supports TVA's bid to expand empire

The Tennessee Valley Authority is getting lots of support in Congress for its bid to break away from tight taxpayer control and further expand its government-supported power empire.

There are scores of sponsors of legislation which would for the first time authorize the TVA to issue its own revenue bonds to pay for expansion.

Under this proposal, the TVA would be permitted to issue bonds up to \$750 million to raise money for new expansion. Once the legislation was passed, the TVA would become for all practical purposes a self-sustaining power producer without taxes or other normal business expenses, and unhampered by normal congressional control.

This legislation is backed by about everyone with the exception of competing electric and fuel industries. The President has urged its passage.

Restrictive buying terms under consideration

Congress once again is considering giving the government power to impose controls over consumer credit and charge accounts.

Pending plans would authorize the Federal Reserve Board to revive its Regulation W, which requires the buying public to meet strict down-payment requirements and to pay off their balances within short periods of time.

Such a move would have the effect of greatly restricting the sale of all consumer goods. Restrictive terms on buying, if put into play today, would undoubtedly take hundreds of thousands of consumers out of the market for many items.

President Eisenhower does not favor wage, price and credit controls as an economic weapon. But he warns that if the country doesn't restrain the wage-price spiral voluntarily, "something will have to be done." The buying public, he says, will demand it.

Pre-merger requirement will probably pass

Tougher antitrust laws will probably be passed by Congress this year. A host of measures designed to give the government more power over mergers and to more rigidly control business pricing is pending before the lawmakers.

One of the first such measures likely to pass is so-called pre-merger notification legislation. This measure, already approved by a Senate anti-trust

subcommittee, would require firms planning to merge to give the government 60-days advance notice.

The pre-merger requirement would apply where the combined assets of the merging firms top \$10 million. The measure would not permit the government to block the merger in advance except through court injunction proceedings—a power which it already has when it learns of merger plans in advance.

No broad tax cuts or increases seen for 1959

Small business firms will have to wait another year or more for any major tax relief.

Top congressional leaders are making it plain that there will be no broad tax cuts or tax increases this year. But some minor "technical" tax adjustments to aid some small businessmen may get through.

The House Ways and Means Committee has already approved a measure to provide tax incentives to self-employed persons who set up their own retirement plans. Under this legislation, a self-employed person could defer taxes up to 10 per cent of his annual income, or \$2500, whichever is less, if he invested it in an approved restricted retirement plan. The limit in a lifetime would be \$50,000. Taxes would be paid on these funds when they were withdrawn upon retirement, but the tax rate then would probably be much lower. Experts figure it would save taxpayers some \$360 million a year.

Another measure, would provide for some \$4 billion annually in tax cuts. The measure, widely supported by businessmen, would cut both personal and corporate tax rates in five annual steps. All tax brackets would be affected. The present 52 per cent corporate tax rate would be cut to 47 per cent. The top personal rate of 91 per cent would be cut to 47 per cent.

In addition, tax depreciation rates on facilities and equipment would be increased to lower business taxes; the capital gains tax would be liberalized, and estate and gift taxes would be cut sharply.

The Treasury Department is firmly opposed to this type of tax reform this year.

Several congressmen have also sponsored legislation which would permit a small firm to deduct up to \$30,000 a year, or 20 per cent of net income, whichever is less, if it were reinvested in the firm.

Such tax measures, however, face strong efforts of the White House to balance the budget for the fiscal year beginning next July 1.



Greatest Little Regulator in the World

REGO®

2302 REGULATOR

now at new low prices

Ideal LP-Gas control for cottages, mobile homes, ranges, hot water heaters, flood-lighting, paint burning, salamander operation on construction work, . . . any service with loads up to 60 cfh (150,000 btu).

REGO 2302 REGULATOR OUTFITS

5713S.

A two-cylinder outfit with disc check manifold. Consists of regulator, manifold block, and two pigtails.

5723S.

A two-cylinder outfit with manual throwover manifold. Consists of regulator, throwover manifold, and two pigtails.

5733S.

A single-cylinder outfit for connecting to standard POL cylinder valve. Consists of regulator and pigtail.

- New greater adjustment range and more sensitive adjustment.
- New increased relief-vent capacity for added safety.
- Die-cast aluminum body and bonnet—lifetime durability.
- Lowest price ever for famous RegO quality.

Here's the dependable, economical regulator that outperforms anything in its price class—no drilled bonnet vent to clog—safety bleeds through bonnet-cap fluting. If relief device opens wide, the cap blows free for instantaneous discharge to assure continuous safety.

RegO recommends new 2302 Regulator Outfits for every purpose within their capacity where good performance at minimum price is important. Quality-built and UL-listed, they're the biggest regulator "dollars worth" in RegO's long history for values.

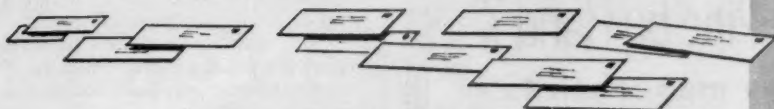
DO YOU KNOW
It will pay you
dividends to join!



The BASTIAN-BLESSING Company

4201 West Peterson Avenue, Chicago 46, Illinois

WORLD'S LEADING MAKER OF VALVES, MANIFOLDS,
REGULATORS, AND CYLINDER OUTFITS FOR LP-GAS CONTROL

**BPN**

Letters

To prevent condensation

British Columbia

Three 1000-gal. propane tanks provide fuel to a motel located 75 miles from the nearest fuel supply, in a location subjected to winter temperatures of 30 deg. below zero. They are manifolded to feed through two Fisher No. 64 first stage regulators connected in parallel.

The red and green pipes are in a horizontal plane, with drops to the two regulators. There may be some reason to believe that these lines and the first stage regulators will become filled with liquid propane, resulting from the condensation of gas vapors during cold weather. Present method of manifolding and of first stage regulation was designed to maintain uniform tank pressures and liquid levels.

It has been suggested that Fisher type 722V regulators be mounted at each of the tank valves, to prevent high pressure vapor from entering the red and green pipes.

This method of manifolding will not maintain uniform liquid levels, but will prevent condensation.

Should we install the three 722V regulators, or leave the present manifolding and regulators in place? Would we prevent lock-off of fuel delivery to the motel if we graded the red and green pipes so that they will drain back to the tank valves?

H. F. C.

Yes, there is reason to believe that condensation will take place in the lines between the tank valves and the first stage regulators. If there should be any moisture present in the fuel, then regulator freeze-ups would be a definite possibility even with the two-stage regulators.

Connecting the vapor lines from the tank valves ahead of the primary regulators will provide uniform vapor removal from the tanks. How-

ever, we suggest the piping be kept as short as possible commensurate with ample provisions for expansion and contraction. The piping should be sloped up all the way to the regulators so that condensate can drain back to the tanks. Instead of dropping down from the manifold to the regulators, we suggest rising vertically to the regulator inlets. This will prevent condensate from reaching the regulator valves.

The model 722V regulators may have some advantage if installed in place of the model 64 regulators, since they are larger and more powerful. However, if one is placed at each tank, withdrawal from the three tanks may not be uniform as mentioned in your letter.—Ed.



Tank leasing

Wisconsin

In your October 1958 editorial, "Beyond the Mains," we are interested in your comments concerning Mr. Frank Grasso of St. Louis and Mr. Gordon Allard. Could you please send us more information on how these two gentlemen can show how they write off tanks in five to eight to ten years.

We are presently leasing our tanks for a flat charge and are interested in their program.

M. H. B.

Your inquiry directed to Martin Brower of BUTANE-PROPANE News relative to depreciation schedules and tank leasing methods has been referred to me for reply.

You undoubtedly realize that there is a wide variance in the L. P. gas industry in determining the useful life of a tank—anywhere from 5 years for tanks used in export business and used tanks to 10, 20 and sometimes 25 years for new tanks. You are also aware of the deprecia-

tion methods used—straight line, declining balance, sum of the digits, etc.

The majority of L. P. gas businesses are relatively small and one of the major problems facing them is adequate capital for expansion, consequently they have used the fastest depreciation schedules permitted. It permits a more rapid recovery of new investments because income taxes decline as allowable depreciation charges increase. The result is that companies can retain in the business funds which would otherwise go to the tax collector. Taxes are not avoided, but merely deferred assuming the investment continues profitable. Should the business become less profitable in later years, it has been permanently benefited by the deferment of taxes during its profitable years. I am sure that you are already quite familiar with these factors.

All of the dealers with whom I have come in contact during the past 12 years, exclusive of the large public companies, use a 10-year life for tanks. Older companies usually use the straight line method while the newer ones use either the declining balance or sum of the digits methods. To my knowledge, the internal revenue department has never questioned using the 10-year life, but of course that situation could change.

Using the declining balance method, tanks worth \$10,000 can be depreciated \$6720 during the first 5 years assuming a 10-year life. Under Title II of the Small Business Tax Revision Act of 1958, an additional one-shot initial depreciation allowance of 20 per cent is allowed in addition to the regular depreciation on personal property (not buildings) up to a cost of \$10,000 (\$20,000 on a joint return). Corporations are limited to \$10,000. Now \$10,000 worth of tanks can be depreciated \$3600 the first year, or a total of \$7380 in 5 years assuming the company would qualify as a small business.

Relative to tank leasing programs, there are nearly as many different methods and schedules as there are

Cut and Thread Pipe by Hand?

...not me or my men when I
can get the new tough fast little

RIGID 300

Power Drive

For
Only \$199⁵⁰

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This new 300 is clear out of its price class! Its **RIGID**-built motor has extra power and extra-long brush life . . . heavy-duty bump-proof switch . . . **RIGID** Speed Chuck with guaranteed tight grip, forward, reverse, replaceable jaw inserts and all-metal hand wheel . . . 2 extra-strong tool support bars . . . and a lot of other features that make it far the most for your money. You can't afford to be without it—see and try the new 300 at your Supply House!



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dealers. A company may have started out years ago with a very sound and realistic program, and then later on a newcomer enters business in the territory with some entirely different idea.

I can best illustrate this situation by giving you the rental schedules of four companies all operating in the same general area and competing with each other where their territories overlap.

Company A

Tank Size	Annual Rental
50 gal.	\$14.00
100 "	18.00
150 "	25.00
250 "	34.00
500 "	45.00

Company B

Tank Size	Annual Rental
50 gal.	none used
100 "	\$12.00
150 "	18.00
250 "	18.00
500 "	24.00

Both of the above companies have a large amount of industrial and commercial business where they install 1000 gal. and larger tanks. Rental for these is 1/2 cent to 1 cent per gal. depending upon the size of the tank. Company A does not make an installation charge; company B does, the amount depending upon the work involved. Neither company charges for cylinders in use.

Company C

This company makes an installation charge which is equivalent to the cost of the tank plus whatever labor is involved and charges no rental.

Company D

This company makes a \$35 installation charge which includes the first year's rental. From then on, the annual rental is \$27 regardless of the size of the tank. It so happens they use mostly 250's and 500's. This company also uses meters rather extensively. In this situation they make a \$10 installation charge, and the minimum monthly charge for gas is \$2.25 for the first 100 cu ft (about 3 gal.) whether the gas is used or not. The charges are the same for all sizes of tanks. This actually amounts to their annual rental of \$27 but includes about 35 gal. of gas.

I have come in contact with situations in other parts of the country where dealers give the customer a lifetime lease for \$1 and no rental. And there are many other methods used. It is a mystery to me why deal-

Names you know name **LMC!**



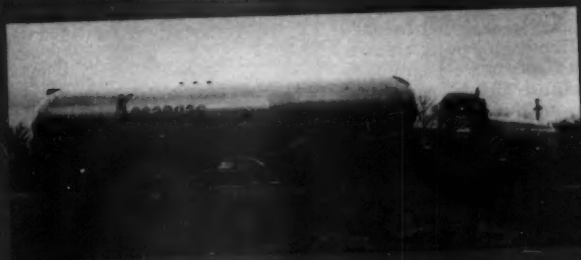
PETROLANE BLEND CO., Billings, Montana is a division of Petrolane which operates throughout the West.



PHILIPPINE ACETYLENE Co., Manila, operating in Manila and throughout the Philippine Islands.



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ers do not get together on some more or less uniform charge for the use of equipment which would be on a realistic basis commensurate with the investment involved.

J. Gordon Allard



Wiring boiler controls

Ontario

In our area there are a number of customers using propane hot-water boilers for househeating.

In all cases the same popular make cast-iron boilers are used.

The first argument that has arisen is regarding the wiring of the boiler controls (circulator, aquastat, thermostat and gas valve).

All units are wired with the room thermostat controlling the burner and the aquastat operating the circulator.

It is argued that the room thermostat should actuate the circulator and the aquastat control the burner.

All the jobs are one-pipe, closed

forced circulator systems installed by the contractor.

What do you feel are the aspects of the plumbing most likely to cause high fuel consumption?

R. E. D.

We believe the boiler controls are hooked up so they will give as economical operation as possible. It is a standard method.

However, consider what can take place. Assume the weather is mild or the owner turns the thermostat down or off at night. As the system is now connected, if the thermostat does not call for heat, the burner does not come on. If the thermostat does come on, the burner and the water is heated. The greater the demand for heat, the hotter the water is heated, up to a maximum cut off. On the other hand, if the burner was actuated by the aquastat, the burner would operate to continue keeping the water warm, often when there would be no call for heat over a considerable period of time.

Habits of the family and construction of the house will have more bearing on the fuel consumption, other items being equal. The fuel supplier should see that the venting of the boiler is correct, that the boiler is designed and constructed for gas firing and then check to see that combustion is proper. Combustion product analysis should be made. About 30 per cent excess air in the combustion products insures complete combustion without excessive heat loss with the combustion products.—Ed.



Can use high altitude pistons

Kansas

We have a customer who is planning on using a 1950 GMC 270 cu. in. motor on an irrigation pump and would like to know how much can be planed off the head. We are using an Ensign on this unit.

Any other suggestions you may have to increase the efficiency of this motor would be appreciated.

H. E. C.

The maximum that can be planed from the head of this motor is .060 in.

It is suggested, as an alternative, that high altitude pistons may be installed instead of planing the head. The high altitude pistons can be obtained through your local GMC dealer or distributor.—Ed.



NO TOOLS REQUIRED

Specifically designed for LP-Gas line connections, Hansen GRL Couplings completely eliminate the hazard and annoyance of leakage or spillage of gas.

To connect (no tools required), you merely push the Plug into the Socket—all the way. To disconnect, just turn sleeve—Coupling instantly and automatically shuts off both ends of line.

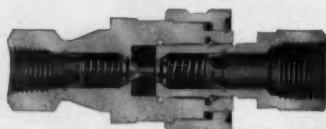
Sockets available with 1/4" female pipe threads. Plugs available with 3/8" female pipe threads.

Positive, Leakproof Connections

WITH **HANSEN** 3-GRL1621

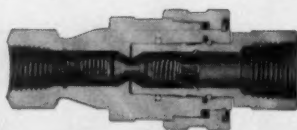
**QUICK-CONNECTIVE COUPLINGS
FOR LP-GAS**

APPROVED BY
UNDERWRITERS'
LABORATORIES



PARTIALLY ENGAGED

Cutaway view of partially engaged Coupling. Note double protection against spillage—with Coupling already sealed by O'Ring—and with flow of gas still completely shut off on both sides of line by valves in the Socket and Plug.



FULLY ENGAGED

Cutaway view of fully engaged Coupling. Coupling Ring-Lock provides positive lock in groove of Plug—O'Ring completely seals Coupling—valves are actuated to open position to permit free flow of gas through connection.

Write for descriptive literature

SINCE 1915



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THE HANSEN

MANUFACTURING COMPANY

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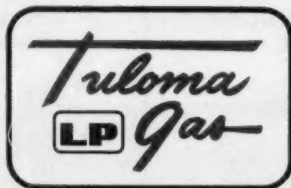
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Tulsa, Oklahoma

APRIL 1959

beyond the mains

BPN

L.P. GASMEN WHO MUST COMPETE WITH REA CO-OPS WILL FIND MIGHTY SMALL COMFORT IN OUR MR. REGEIMBAL'S REPORT (IN THIS ISSUE) ON THE RECENT NRECA CONVENTION IN WASHINGTON. President Eisenhower, who addressed the co-op convention, renewed his plea for a realistic interest rate on funds borrowed from the government, but his was a voice crying in the wilderness.

Surprisingly, the only semblance of support for the President's stand came from David A. Hamil, REA administrator, who conceded that 2 per cent is a "bargain basement rate," and who warned co-ops against assuming that the Rural Electrification Act "includes a lifetime guarantee of federal financing."

In contrast, the Congressional voices raised against any tampering with the sacred 2 per cent formed a thunderous chorus. It must have been a little monotonous, but it was still music to the ears of the co-ops. It was obvious that their power is not diminishing; if anything, they grow stronger with each passing year. If there ever was a time when an economy-minded Congress might have been inclined to make the co-ops contribute their small bit to the balancing of the budget, that time is past. For this Congress, at least, economy is a bad word.

To the lawmaker's finely-tuned political ear, the only competitive issue at stake is the REA's vs. the electric utilities, and the latter are such a fine, fat whipping boy that such an issue is openly welcomed. As usual, LPG dealers were completely forgotten. The politicians did not appear to be listening when John Ford, manager of the Alabama REA Association, said from the podium:

"The third big concerted push recommended for 1959 by NRECA's Power Use Committee will encourage the purchase and use of such small appliances as frypans, roasters, and electric grills, which look so good when cooking food electrically on top of a gas range whose burners are seldom lighted any more."

These, of course, are the "essential" power uses that the government is helping finance. The fact that they are hurting the LPG dealer is completely overlooked.

IF NOTHING ELSE, THE CONVENTION PROVIDES FOOD FOR THOUGHT FOR L.P. GASMEN. Why do you suppose the electric boys are so successful in selling counter cooking gadgetry to the housewife when such a large proportion of our sales is in bottom-of-the-line appliances? Does she buy the cheapest non-automatic gas range so she can save her money for these electric accessories? Or is she so fed up with using a match to light a glamorous, stripped down range that she feels she simply must have a "modern," "convenient" electric grill?

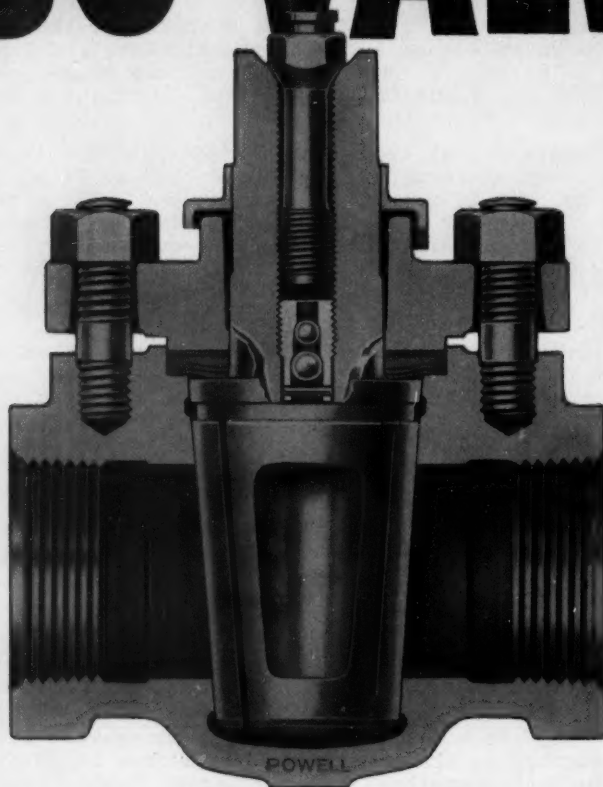
Or are our salesmen afraid to ask her to lay out an extra \$25 or \$50 for a range that will keep electricity out of her cooking jobs.

The convention should also remind us--forcefully--that nationally coordinated political activity by L.P. gasmen is sorely needed. The co-ops' only real appeal to public support is the millions of users of electricity whom they serve. That's no more than we have. LPG has modernized the farm just as electricity has.

All we're asking is a chance to compete on even terms. That's not too much to ask.

William Clark

POWELL LUBRICATED PLUG VALVES



Sectional-Powell Lubricated Plug Valves, Single Gland type. Also available with Flanged Ends.

Powell Lubricated Plug Valves have many advantages over conventional types of Valves:

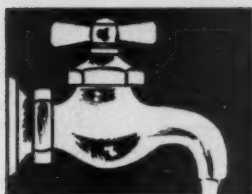
- Simple design: only 3 basic parts—body, bonnet, plug.
- Quick, complete shut-off.
- Tapered Plug assures positive seating.
- Machined surfaces of plug and body are not exposed in open position.
- Cavity-free straight passage assures streamlined flow.

Available in sizes $\frac{1}{2}$ ", through 16", depending on the type required—semi-steel 175 and 200 pounds WOG; carbon-steel ASA 150 and 300 pounds. Also in other alloys on special order.

For complete information, write for our new Lubricated Plug Valve Catalog, Number PV-5. Or contact your local Powell Distributor.

The Wm. Powell Company • Cincinnati 22, Ohio
Dependable Valves Since 1846

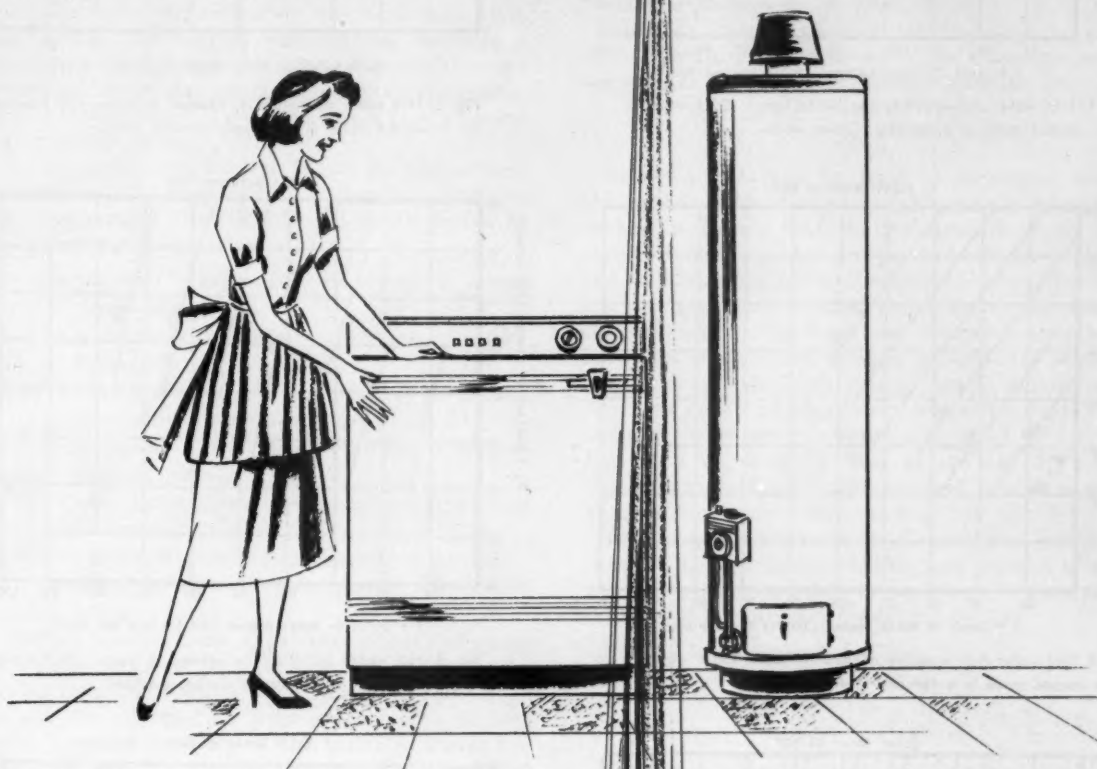
POWELL...world's largest family of valves



APRIL 1959



Increasing use of automatic washing machines is placing greater demands on hot water heaters. Here's a simple method for determining hot water requirements through as many as four consecutive cycles.



Sell more hot water with scientific sizing

PEOPLE identify poor performance of an appliance with the fuel used. An LPG oven that bakes unevenly brands the fuel as inferior. An undersized furnace is liable to turn the homeowner against the fuel itself as well as the appliance.

Nowhere are we so vulnerable to such faulty logic as in the water heating system. While people's needs for space heating and cooking remain relatively constant, their needs for hot water are constantly increasing—and in many cases they are hardly aware of it.

They add a bathroom, a dishwasher, a washing

machine and immediately their demands on the water heater increases several-fold. Or they add a member to the family and the washer, never before used for more than one cycle a day, suddenly is called upon to run three or four washings in a row with no letup. All at once its recovery capacity becomes a matter of critical importance. Will it still do the job?

If it won't, it's vulnerable to replacement by an electric water heater. Not that there's any logic in this. But so long as people have only the vaguest conception of what recovery rates mean, the electric hot

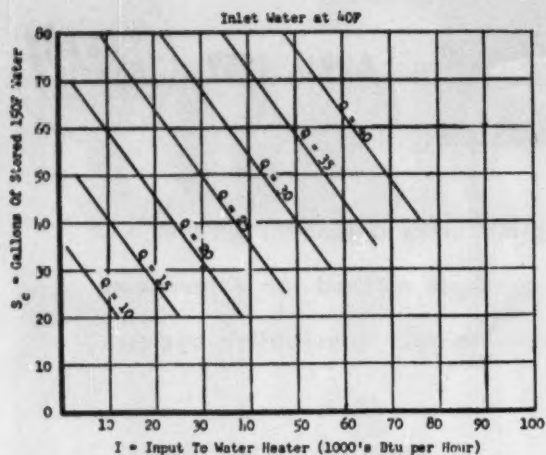


Fig. 1. Hot water deliverability needed to insure 120 F water for a second cycle in automatic clothes washers.

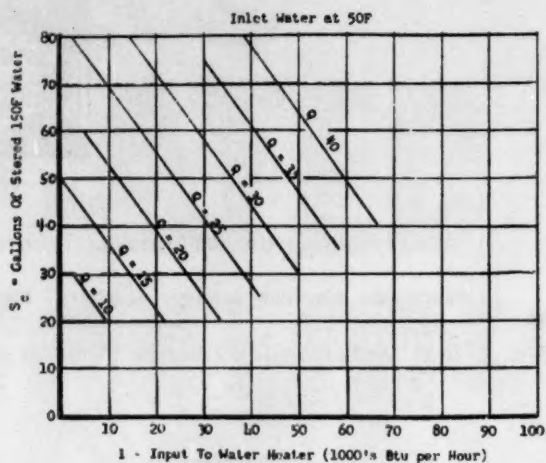


Fig. 2. Hot water deliverability needed to insure 120 F water for a second cycle in automatic clothes washers.

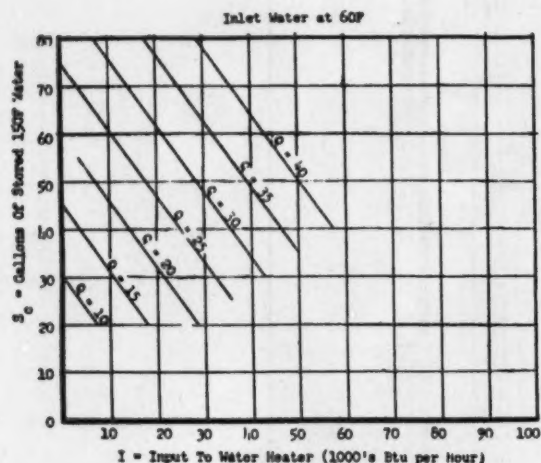


Fig. 3. Hot water deliverability needed to insure 120 F water for a second cycle in automatic clothes washers.

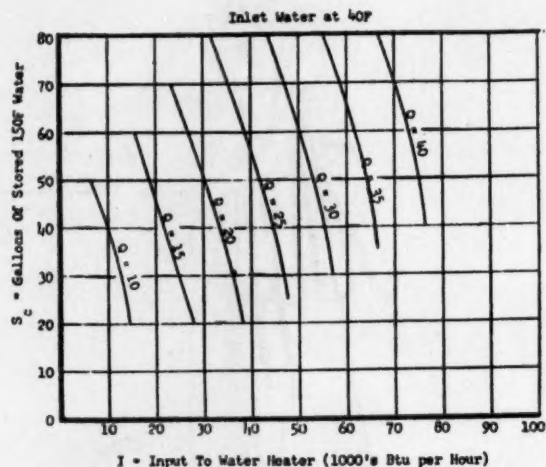


Fig. 4. Hot water deliverability needed to insure 120 F water for a third cycle in automatic clothes washers.

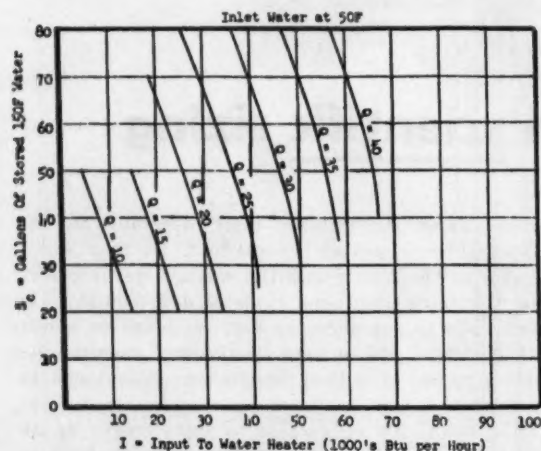


Fig. 5. Hot water deliverability needed to insure 120 F water for a third cycle in automatic clothes washers.

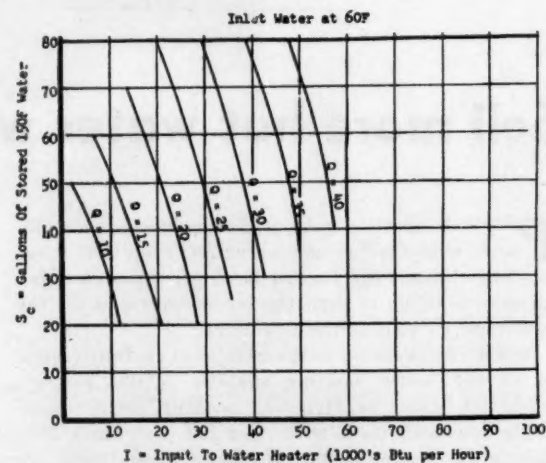


Fig. 6. Hot water deliverability needed to insure 120 F water for a third cycle in automatic clothes washers.

water heater, complete with an elephantine storage tank, may quite naturally appear to be the answer.

So, with the competitive race becoming hotter and electric appliance manufacturers working hard to narrow the wide advantage that gas now holds in this field, it is more important than ever for the dealer to do a *scientific* job of water heater sizing.

Fortunately, the AGA has given us the means to do this. A "task group" assigned to the job by the AGA Committee on Competitive Services has developed a technically accurate heat balance method. The work was done by the AGA Laboratories under the direction of Walter B. Kirk, chief research engineer.

In this work, the sizing of the water heater was tied directly to the demands of automatic washers. Formulae were worked out on this basis, and from them curves (see figures) were derived. Knowing a few simple facts about the equipment and expected usage, any dealer can apply these curves to any particular installation and come up with a recommended water heater rating.

To understand the basis on which the curves were worked out, let's examine the computations made by the task group. The method used is illustrated in the following calculations:

Let Q = hot water in gallons per cycle required by washer (assume 20 gal.)

S_c = water heater storage capacity in gallons (assume 30 gal.)

T_s = water heater thermostat setting (assume 150 deg. F.)

T_i = temperature of inlet water (assume 40 deg. F.)

T_{t_1} = temperature of the water in the heater at the completion of one washing cycle

I = water heater burner input rating in Btu per hour (assume 35,000 Btu/hr.)

E_r = recovery efficiency, per cent, (assume 70 per cent)

t = time of one automatic washer cycle in hours (assume $\frac{1}{2}$ hour)

During the first cycle, Q gallons (20 gal.) of water at a temperature of T_s (150 deg. F.) will be withdrawn from the storage tank. Assuming that Q (or 20 gal. for example) is large enough with respect to S_c (storage capacity of the tank) to cause the burner to ignite almost immediately, an amount of heat equal to the input rating I (35,000 Btu) times the recovery capacity E_r (70 per cent) will be absorbed by the water, or 24,500 Btu.

For convenience in later computations, this heat balance is based on a reference level of 0 deg. F. rather than the conventional 32 deg. F. This permits use of measured temperature rather than temperature rises. The heat balance is:

$$(1) \quad 8.33^* (S_c - Q) T_s + 8.33^* Q (T_i) + I E_r t = 8.33^* S_c T_{t_1}$$

The first left hand term in this equation ($8.33 (S_c - Q) T_s$) represents the heat remaining in the water heater tank after a draw of Q gallons. The second expression ($8.33 Q (T_i)$) represents the heat content of the inlet water. The third expression ($I E_r t$) is the heat put into the water during a clothes washing cycle. The right hand expression is the

*Btu value

heat content of the water in the storage tank at the completion of the first washing cycle.

Substituting assumed values for symbols as an illustration, we have:

$$[8.33^* (30 - 20) 150] + [8.33^* \times 20 \times 40^*] + [35,000 \times .70 \times .5] = 8.33^* \times 30 \times T_{t_1}$$

$$\text{or } 12,495 + 6,664 + 12,250 = 249.9 T_{t_1}$$

$$31,409 = 249.9 T_{t_1}$$

$$T_{t_1} = \frac{31,409}{249.9} = 125.6$$

Thus at the end of one cycle, the temperature of the water in the tank is 126 deg. This is satisfactory, assuming there is not too much line loss from the heater tank to the washer.

Equation (1) may be rewritten as follows to give the temperature of the water in the automatic storage tank at the end of the clothes washing cycle.

$$(2) \quad \frac{(S_c - Q) T_s}{S_c} + \frac{I E_r t}{8.33 Q} + T_i \frac{Q}{S} = T_{t_1}$$

Equation (2) may be used to determine what values the combination of variables on the left must assume to insure that the temperature T_{t_1} in the storage tank is above some specified minimum at the end of a washing cycle. Assuming a given thermostat setting, inlet water temperature, automatic clothes washer cycle time, and minimum acceptable hot water temperature, various combinations of storage capacity and input rating can be determined. This was done and the results plotted in Figs. 1, 2 and 3 for inlet water temperatures of 40, 50 and 60 deg. F., a thermostat setting of 150 deg. F., cycle time of one-half hour, and assumed minimum permissible hot water temperature of 120 deg. F.

In a manner similar to the foregoing, a heat balance can be written for conditions at the end of two washing cycles, resulting in equation (3) for application to three successive washing cycles:

$$(3) \quad \frac{(S_c - Q)}{S_c} \frac{(S_c - Q) T_s}{S_c} + \frac{I E_r t}{8.33 Q} + T_i \frac{Q}{S} + \frac{I E_r t}{8.33 Q} + T_i \frac{Q}{S} = T_{t_2}$$

This is similar to equation (2) except that the entire expression for T_{t_1} given by equation (2) has been substituted for T_s in equation (1) in deriving equation (3). This is because T_{t_1} is the temperature of the water remaining in the water heater storage tank after water has been drawn for the second automatic washer cycle.

At the end of three washing cycles, the equation expands into

$$(4) \quad \frac{S_c - Q}{S_c} \frac{S_c - Q}{S_c} \frac{(S_c - Q) T_s}{S_c} + \frac{I E_r t}{8.33 Q} + T_i \frac{Q}{S} + \frac{I E_r t}{8.33 Q} + T_i \frac{Q}{S} + \frac{I E_r t}{8.33 Q} + T_i \frac{Q}{S} = T_{t_3}$$

Equations (3) and (4) are plotted for the given conditions in Figs. 4 through 9.

(For applications of this sizing method please turn page.)

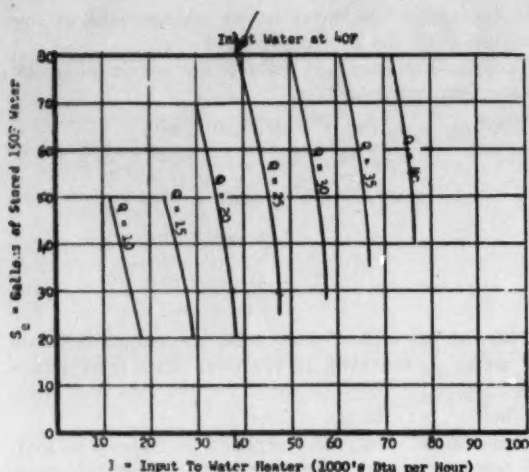


Fig. 7. Hot water deliverability needed to insure 120 F water for a fourth cycle in automatic clothes washers.

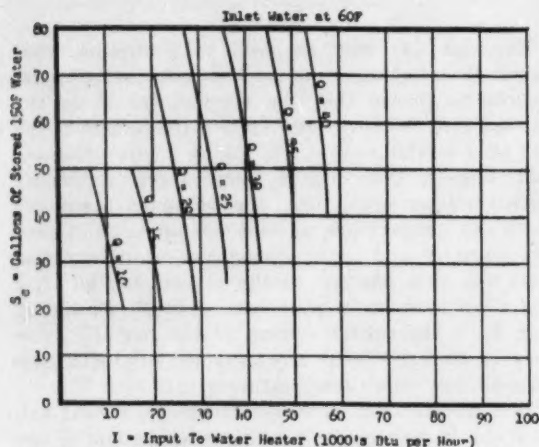


Fig. 9. Hot water deliverability needed to insure 120 F water for a fourth cycle in automatic clothes washers.

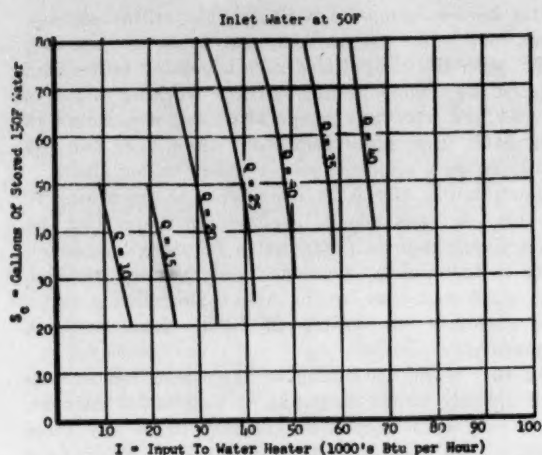
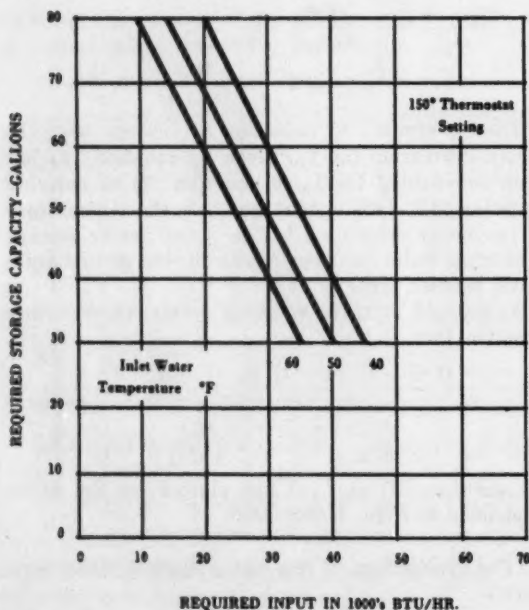


Fig. 8. Hot water deliverability needed to insure 120 F water for a fourth cycle in automatic clothes washers.

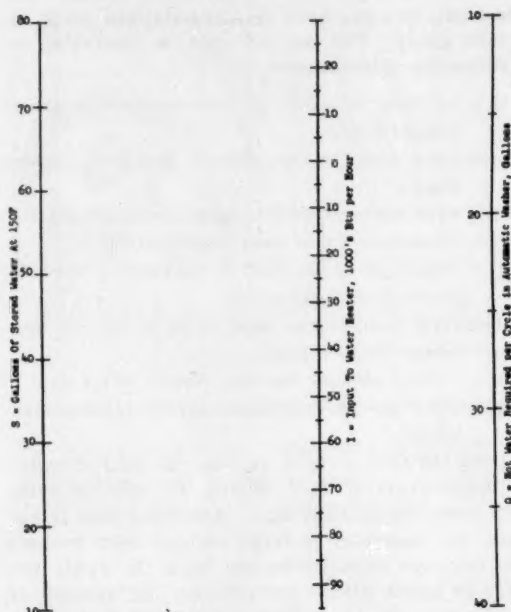


Fig. 10. Hot water deliverability needed to insure 120 F water for a second cycle in automatic clothes washers. 40°F entering water temperature.

Fig. 11. Domestic Water Heating Sizing Chart (left). To provide 81 gal. of hot water (above 120°F) in two hours.

Application of this sizing method.....

IN sizing an automatic storage water heater for a particular installation by this method, it is necessary to determine the following:

1. The minimum temperature of hot water acceptable for the final cycle. Most of the literature dealing with clothes washing methods indicate that 120 deg. F is the lowest acceptable hot water temperature for clothes washing.
2. The number of washing cycles desired.
3. The hot water demand per cycle for the particular automatic clothes washer - Q.
4. The length of time per cycle, t. For practically all automatic washers this may be assumed to be one-half hour without introducing appreciable error.
5. The minimum inlet water temperature which will be encountered, T.
6. The desired water heater thermostat setting, T_s.
7. The recovery efficiency of the water heater, E_r.

Additional hot water demands for automatic dishwashers and normal household usage can be taken into account by establishing a corresponding higher value of Q. For example, in the University of Illinois report on "Investigation of Performance Characteristics of Automatic Storage-type Gas and Electric Domestic Water Heaters," sponsored by the Committee on Comparison of Competitive Services, 3 gal. per hour of 150 deg. F. water is considered adequate to take care of normal household usage during a clothes washing period.

No allowance is made in this analysis for the water metering action of a thermostat valve in some automatic washers during the rinse cycle. Many manufacturers design their automatic washers to rinse at a maximum temperature of 110 deg. F. and thus introduce cold water during the rinsing cycle. As the temperature of stored water is reduced to 130 or 120 deg. F., more water is required for the rinse cycle than is necessary when stored water of 150 deg. F. is introduced into the automatic washer. The net result in omitting this factor is an error of about 8 per cent in calculations of three or four automatic washer cycles. The effect of this error would be eliminated by correspondingly increasing the input or storage capacity by 8 per cent.

After presentation of the foregoing method of sizing water heaters by the Task Group to the Committee on Comparison of Competitive Services, the committee set a standard of three loads of clothes in two hours in a sequence washer using 25 gal. of water per load or cycle, plus 3 gal. of hot water per hour use in the home during the washing cycle for other purposes, or 81 gal. of hot water in two hours.

On this basis, Fig. 11 was plotted, showing required storage capacity and input ratings, at a thermostat setting of 150 deg. F., for inlet water temperature of 40 deg. F., 50 deg. F., and 60 deg. F.

Comparing this suggested AGA method of sizing water heaters for single family occupancy with the "conventional" method of sizing, assuming a regular washer instead of an automatic sequence washer:

Assume a family of 3 people and the following hot water usage for a maximum day;

Shower—3 gal. per minute per person	
on for 4 minutes per shower	= 36 gal.
Hand dishwashing—3 gal. per "load".	
3 loads per day	= 9 gal.
Food preparation—3 gal. per meal, 3 meals	= 9 gal.
Regular clothes washer—12 to 15 gal. per load	
assume 3 loads @	
13 gal.	= 39 gal.
Cleaning—	= 10 gal.
	103 gal.

According to these generally accepted maximum days requirements for the above minimum usages of hot water, it seems that without an automatic clothes washer and automatic dishwasher, about 100 gal. per day are required.

The storage capacity required would be 1/5 of the day's use or 20 gal.

According to the University of Illinois Bulletin No. 436, Daily Withdrawal Schedule A for an average family with a conventional clothes washing machine, the maximum withdrawal occurs from 7:30 to 8:30 a.m., and amounts to 17 per cent of the daily usage.

$$17 \text{ per cent of } 100 \text{ gal.} = 17 \text{ gal.}$$

$$\text{If the recovery efficiency is 70 per cent the Btu per hour input} \\ = \frac{8.33 \times 17 \text{ gal.} \times 100 \text{ deg. F use}}{.70} = 20,230 \text{ Btu per hour.}$$

Thus a 20 gal. storage tank with an input of about 20,000 Btu per hour would barely supply the foregoing minimum requirements. It certainly would have no reserve capacity, nor would it be adequate should this "average family" later buy an automatic sequence clothes washer, a dishwasher, or should there be an increase in the size of the family.

As a result of these studies, the task group strongly recommended that the gas industry sell and promote water heaters which will have a deliverability of 81 gal. of hot water in two hours. ■

Adapted from a report to the AGA by C. L. Benn, chief utilization engineer, Equitable Gas Co., Pittsburgh

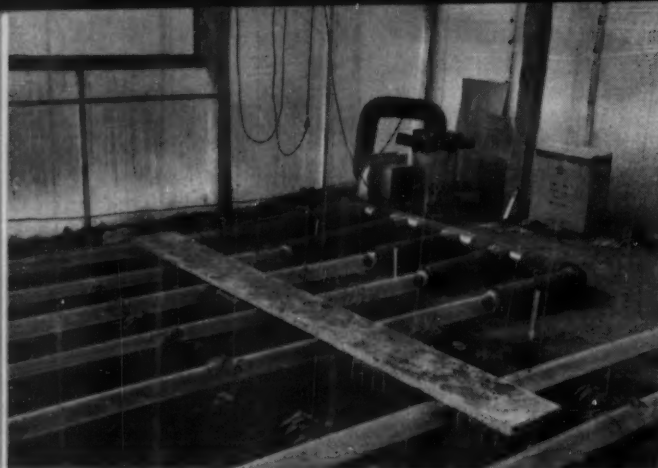


Fig. 1. Plastic greenhouse heating installation at the University of Kentucky. This photo was taken immediately after the system was put in.



Fig. 2. Two weeks after the installation, the plants had already shown remarkable growth, aided by the flow of warm air close to the base.

In plastic greenhouse systems, LPG makes the plants grow

E. M. EMMERT
Professor of Horticulture
University of Kentucky

IN the last few years vegetable flower growers have been finding that they can grow their crops out of season under cheap plastic instead of having to use expensive glass construction. This enables northern growers to meet southern competition in a more efficient way than ever before. Thousands of small plastic houses are up or going up. Some rather large installations are also in operation.

No very large flower installations are in operation, but numerous small florists are using plastic with

remarkable success. Several graduate students at the University of Kentucky have demonstrated fine growth of cut flowers as well as of flower plants.

One large lettuce grower supplying the Cincinnati market from his acre of plastic houses has proven his lettuce to be superior to glass-grown lettuce. Many small tomato houses have put good quality tomatoes on the market at glasshouse prices and enjoyed a good profit. In fact, tomatoes from plastic likely will be able to meet southern shipped prices in the future which glass growers cannot do.

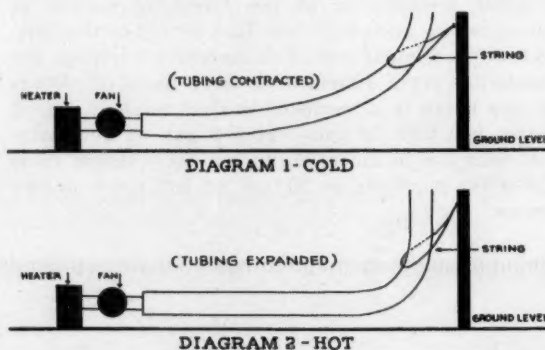
Since plastic is so tight and a double layer can be used with a dead air space, the use of gas burners is proving valuable, especially

in small houses. The double layer cuts the Btu requirements by about half.

Of course, for large installations a wet system is probably best. However, propane gas burners in the house itself are the most convenient and uniform in heat and require the least labor and attention. When the labor, overhead, and upkeep needed for coal heating systems are considered, the heating cost of gas is not so much higher after all. What is more L. P. gas, if burned efficiently, will stimulate plant growth due to the CO_2 given off. In fact, some large greenhouses at Terre Haute, Ind., burn propane in steam-heated houses just to increase the CO_2 in the air. They have obtained increases in Bibb let-

More than simply an agency for spreading heat, L. P. gas is an important plant growth stimulant in itself. Its pure combustion products, if carefully controlled, can be used to feed young plants and hasten their maturity.

Fig. 3. Tubing expands upon being heated, so it was necessary to devise a means of taking up the slack as the tube grows hotter. The upper diagram shows the configuration of the tubing when cold; the lower diagram shows it after expansion.



tute that amounted to thousands of dollars and paid increased costs many times over.

Another advantage of gas is that there is no coal smoke to dirty up the plastic. Unless the plastic houses are placed so the prevailing wind blows the smoke off them, the plastic gets dirty. In fact, no matter how the houses are placed, some coal sooting is inevitable.

LPG is also a better fuel for this use than natural gas, in spite of its higher cost. Compounds in

may go as high as 3 per cent, so care must be taken to avoid this buildup. Furthermore, a gas burner must burn efficiently or traces of aldehyde may form.

At the university, we have found that plant growth can be stimulated by using fans to exhaust most of the combustion products of LPG. It is only during excessively long periods of cold, cloudy weather (mostly in December and January) that CO₂ concentration gets too strong, and this condition has been

lines placed along the base of plants is another effective way to spur growth. We have found that black plastic tubing is preferable for this application, as it lasts longer than the clear type. Incidentally, this same distribution pattern can be used with hot water systems, but the cost is much higher than when plastic tubing is used with warm air.

In installing such a system, several precautions should be observed. First, tubing runs should be long enough to allow all heat to be radiated before it is exhausted. Second, joints must be sufficiently tightly wrapped to keep the tube from separating when the fan starts. Third, holes should be punched in the bottom of the cold end of the tube to allow condensed water to escape. The tubing can be hung on the side walls, but allowance must be made for contraction and expansion. Suspending the tube from a long wire or cord is recommended.

How the installation is made is shown in *Fig. 1*. (Note the rapid growth of the plants, as shown in the comparison of *Figs. 1* and *2*, the latter having been taken two weeks after the former.)

The manner in which the tubing is suspended to compensate for expansion is shown in *Fig. 3*.

In the experiments, the heat was supplied by a Kur-Mor heater with a blower attachment. The heater has a circle of peripheral vents which carries CO₂ exhaust products to the atmosphere, but at a controlled rate. For the 18 x 84-ft double-wall plastic greenhouse, a 66,000-Btu unit was used. This unit is rated sufficient to heat a total of 2000 sq ft. The blower is a 1/4-hp 110 volt a.c. motor, which moves 2500 cu ft per minute.

Methods of installing the system are illustrated in *Fig. 4*.

It seems that the best advice is to use gas systems on small to medium sized installations and change to hot water on large installations. On very large installations steam can be used. Even if steam or hot water is used it would seem advisable to use gas as a standby and burn it occasionally to insert CO₂ and to put heat to the base of plants at times special forcing is desired. ■

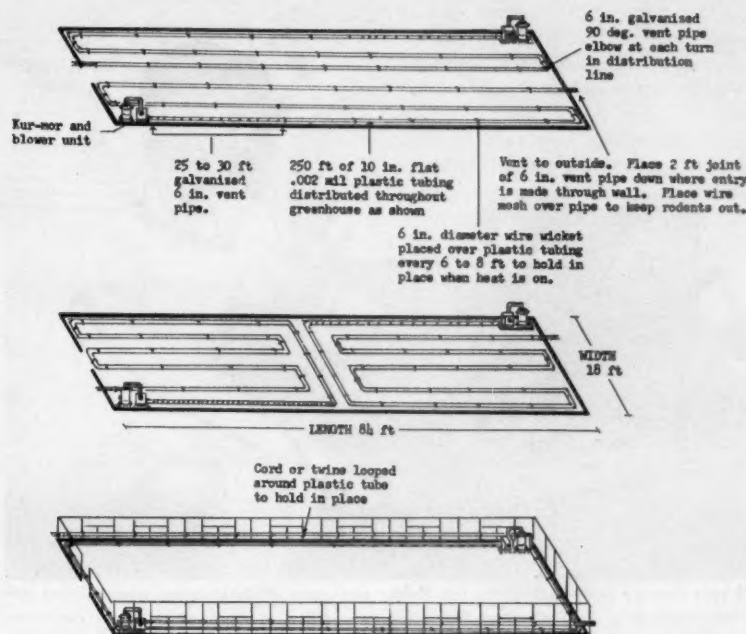


Fig. 4. Suggested heat distribution layouts of the Kur-Mor system. The system shown at top is particularly good for tomatoes and cucumbers and similar plants where the thick pattern of pipes will not be in the way. For lettuce and certain other plants, a less densely piped system is required.

natural gas exhaust might be harmful to plants, so combustion products must be vented to the outside through tight piping. Thus the advantages of the added CO₂ are lost.

With LPG, tight vent joints are not necessary. In fact, tests at the University of Kentucky have shown that a build up of CO₂ concentration in the air from a normal .003 per cent to about .03 per cent (tenfold) is optimum. A 1 per cent concentration is allowable. Any amounts in excess of this will be harmful instead of beneficial. When LPG is burned continuously in a plastic house, the concentration

alleviated by the use of plastic tubing for heat distribution.

A strong fan (of 1/4 to 1/3 hp) pulls the heat from the burner. Since plastic would soften at the heat levels produced at the heater itself, 10 or more joints of 2-ft metal pipes, 6 in. in diameter, are used at this point. Aluminum laminated tubing is particularly good in this use, but is not easy to obtain.

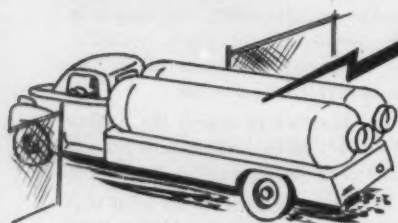
From this point on, 6-in. plastic tubing is used for heat distribution. Cheap and easy to handle, it can be run in any sort of pattern through the greenhouse.

The flow of heat through plastic

MAKE RADIO WORK

TO be really worth the rather sizeable investment you have in it, two-way radio must do much more than simply improve service to your customers. It must actually save you money. If it doesn't, you may not be using it correctly.

It can be a toy, a gadget, or a crutch to lean on, a device which enables you to cut across the tedious red tape of scientific routing and scheduling. As such it may not



Get your drivers out of the terminal and on their way promptly.

necessarily make for greater efficiency or reduced delivery costs. It's no substitute for planning. But, used properly, it's an aid to better planning and tighter control.

Let's analyze it a bit. Without radio, using paperwork controls—degree-day systems, etc.—you have pre-planned routes. These must be fairly rigid if they are to function effectively. Your drivers have their work pretty well laid out for them in advance. Divergence from the pattern is inconvenient—at times, because of the lack of communications, impossible. So you must work hard at preventing emergencies from arising. And you constantly keep in mind the possibility of an emergency and make certain you have prepared for it.



If your two-way radio isn't giving you tighter and more efficient control over delivery and service scheduling, it is only doing half a job. In addition to improving service to customers, it should enable you to . . .



Keep a time check on runs between stops.

Comes radio, and you have almost instantaneous communications with all your drivers. Is this the time to relax and take it easy?

That's not what radio was intended for. In addition to its obvious benefits, it should enable you to exercise a control over your



Control lunch stops and coffee breaks.

drivers that you never had before.

Large trucking companies, who must hold a tight rein on activities of dozens of drivers scattered over wide areas, have found that with radio they can exercise controls in these five ways:

FOR YOU



Cut down dead time spent in the yard and office.

strongly recommended by Motorola, a major radio systems manufacturer, because they give all-day control over the drivers, something that is impossible without radio.

To properly appraise the value of radio in your operations, it is important that you have some means of scientifically measuring it on a before-and-after basis. This should do much more than simply justify your decision to purchase it. It

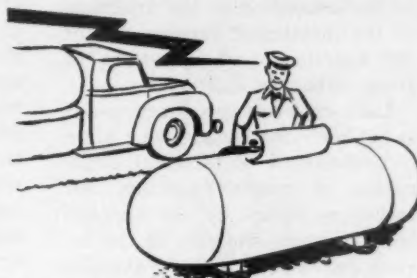
your records will be inadequate. In turn, without these records you'll be unable to work toward a further reduction in the costs of doing business. In these days of shrinking profit margins and increasingly keen competition, the penny and a mill have assumed a new level of importance. A mill saved here and a mill saved there, when multiplied by several hundred thousand gallons, may become the difference between a profit and a loss. They may mean your whole business future.

Radio offers you bonuses over and above these direct dollars-and-cents operational savings. It can give you an "office on wheels," as described in February BPN (page 50). It can bring help swiftly when a truck breaks down miles from the nearest telephone. And it can be a powerful tool for public relations, advertising, and promotion.

When you install radio, you have a legitimate news story to give your local newspapers. If you operate in a relatively small town, radio-equipped delivery vehicles will be enough of a novelty to warrant a full-scale feature article which you can work out in cooperation with the editor. You can attract customers by advertising its advantages to them in the form of better service.

On the job, you can demonstrate radio's ability to quickly satisfy a customer's needs. Let the customer observe your driver as he makes a call for something that will directly benefit *that* customer. In short, take every opportunity to boost the advantages of your radio system to your customers and prospects.

Make radio go to work for you. It's your investment. Make the most of it. ■



Maintain a time record on customer calls.

First, they can speed their drivers away at the start of the day. Drivers are required to call into the dispatcher as they leave the terminal and the time of departure is logged.

Secondly, by requiring drivers to report in when they reach their first scheduled stop, they get a time check on the initial run.

Third, they control coffee breaks and lunch stops by requiring before-and-after calls.

Fourth, they check the length of time per customer stop by requiring before-and-after call-ins.

Fifth, they require a check-in when the driver enters and leaves the terminal so as to have a record of the time spent in the yard and in the office.

These general procedures are

should tell you whether you are truly putting radio to work to its fullest potential.

What, for example, are your:

- Gallons-per-mile delivery costs?
- Gallons-per-hour costs?
- Number of productive stops per day?
- Average minutes per stop?
- Gallons-per-day costs?
- Driver overtime expenses?
- Savings on telephone tolls?
- Chargeable driver errors?

Most important, what were these costs before you adopted radio and what do they run after radio has been installed?

Unless you do use your radio to exercise tighter control over your methods of doing business, you'll be unable to make these comparisons, because without the controls

How to Protect Your Capital AND MAKE IT GROW

By J. GORDON ALLARD

How an investment banker can help insure your future security

ACTUALLY, nothing could be easier to understand than money. One of the most ancient and uncomplicated inventions of man, it was born of necessity to serve a simple purpose, and yet over the centuries, it has been made the subject of more confused thought than any other single thing in history. Especially is this true in the field of investment banking.

Fortunately, today with the ranks of investors now numbering in the millions, more and more people are acquiring an intelligent understanding of this highly important cog in our economic ma-

chine. Still, there exists among the general populace an appalling lack of understanding of the functions of the investment bankers and of the functions and operations of stock exchanges.

Let's explore these functions. It is not our intention to give a highly professional or technical explanation of public financing, but rather to reduce to the simplest possible terms the role of the investment banker and to describe what you as a businessman must do if you are to be in a position to tap the great reservoirs of investment capital available in this country.

The investment banker, like an L. P. gas dealer, is in the business of handling a product—money. He is a merchandiser of money. It is his function to corral quantities of money for businesses, industry, municipalities, states, school districts, etc., furnishing them with their capital requirements with which to carry on their respective endeavors. He obtains money from hundreds or thousands of individuals and gives them a "receipt," as it were, which is a stock certificate. This is the same sort of proof of ownership as the deed to a piece of real property, or the bill of sale when you buy personal property. When individuals, through the investment banker, loan money to corporations or other entities, their "receipt" is a bond or debenture representing a debt and is a promise to pay with interest.

The basic function of the L. P. gas dealer is essentially the same, only the product is different. He corrals large quantities of butane and propane and in turn supplies it to individuals who use it. Hundreds or thousands of individuals give him money for products they need and he gives them a receipt or bill of sale proving ownership of what the individual has received for his money. Along with the simple procedure of exchanging certain things for money, both the investment banker and the LPG

PART FOUR

A critical appraisal of your capital condition may indicate that a public underwriting would be the best way to insure your future security. How would you go about it?

The key man is your investment banker. In this installment, Mr. Allard tells how you should approach him, what information he will need, and how you must get your affairs in order if you are to consummate a successful deal. It is at this point that your underwriting plan will succeed or fail, so careful preparation is a "must." You may not have a second chance.

dealer are selling certain services and products for which customers pay.

When a person needs L. P. gas, he telephones or goes to an individual or company which handles that product. Those in need of investment capital must go where the capital is.

These examples probably appear a bit trite, but it is amazing how often you come upon situations where individuals or companies need money in substantial quantities and yet seem to think they can get it without going to the investment banker where the money is. Often you will hear them say, "Let's do it ourselves—we don't need to pay the banker for his services." This makes about as much sense as having a serious operation without a qualified surgeon.

There is nothing mysterious or hocus-pocus about the investment banking business. It performs a service for the public and gets paid for it just as does the L. P. gas dealer. There is, however, one very big difference between these two businesses. The investment banking business has been going on for many, many decades, while the LPG business by comparison is barely getting started. The advantages of many years of experience are obvious. Investment bankers *must* have a record and reputation for *successful deals* if they are going to survive and prosper, and wide experience over a long period of time has shown them the best ways to make deals succeed. What is more, of *all* businesses, investment banking is one of the most strictly regulated and supervised. It must be if the public is to be protected. It is at the same time a business which must be carried on with the very highest ethical standards. Hundreds of millions of dollars change hands daily over the telephone with no signed papers, no contracts of any kind except the word of the individuals involved.

In our last article we listed three general courses of action an owner of a successful business might take in order to insure his future security. We also discussed in general terms one of those procedures—that of selling a business—and ex-

amined three different ways in which a business may be sold.

Now let's take a look at the second and third procedures mentioned which an owner or group of owners may follow, i. e., that of approaching the investment banker who is in the position to provide the owner or the group with a public underwriting. Exactly what is meant by the term "underwriting"? Just what are the requirements for a successful deal which the banker will look for? Specifically what information must be compiled before the investment bankers can be approached? What are the "do's" and don'ts" you must observe when you are trying to interest the financial community in your deal?

The term "underwrite" means exactly what it implies—"to subscribe one's name to"—as in the case of an insurance underwriter. When an investment banker agrees to *underwrite* your deal he is *guar-*



The investment banker is a merchandiser of money as a dealer is a merchandiser of fuel.

anteeing to put up whatever amount of money is required, be it \$1, \$10 or \$50 million. Where or how he gets the money is none of your concern. He will no doubt interest other investment houses; the bigger the deal the greater the number of bankers who will be involved. Sometimes, particularly with new deals, the banking houses will put up a portion of the money themselves and simply put the stock "on the shelf" and keep it

until it has developed and matured into something of real value with a substantial profit. What the bankers do not retain for themselves they sell to their clients. Now you are all "partners" in the deal—you as the owner or group of owners, and the bankers and some of their clients, or the public, who have put cash into your business. Now you all have a stake in the business, and for everybody's sake, it had better be successful.

It should be mentioned here that there are all kinds of deals, small, medium and large. Some involve a great deal of risk and are highly speculative, while others are much more conservative. Some investment houses are tremendous, having great quantities of capital available for good deals, while other houses are relatively small and are not in a position to handle very large underwritings. All have an important place and function in the financial world. But for the purpose of this discussion we are considering what would be considered, for a new deal in this industry, a relatively large one, amounting to at least \$1.5 or \$2 million, involving a *minimum* amount of risk and speculation and affording the greatest amount of security possible.

All of our previous discussion has been about the *successful* businessman, his problems, and how he may attempt to realize the security he desires. For those who have been outstandingly successful with their business enterprises there is no possible point in taking any undue risk with their capital accumulation in attempting to secure what they have. Furthermore, we are only considering large investment houses of the highest standing which have the unquestioned confidence of their clients and the ability to interest other investment houses. Investment bankers of this caliber simply cannot afford to devote their time and ability to deals which are too small, and certainly the successful businessman, or group, cannot afford to be involved in too small a deal which is usually more hazardous than a large one. In short, the larger the deal, the more underwriters who are involved, the wider the market for

the stock, the more stable the deal. This affords those participating a maximum amount of security with a minimum amount of risk.

Now consider what are the most important requirements for a successful public underwriting—the first things which top flight investment bankers look for.

We have already mentioned the first one. It must be large enough to justify the tremendous amount of work, expense, time and talent required to put a deal over successfully. We will assume our project meets this test.

Secondly, the business must be a *sound and stable* one within an industry the history of which has been good over a long period of time with a substantial future growth potential. The LPG industry as a whole can come up to this requirement. Although a very minor segment, it is nevertheless a part of the oil industry, the overall history of which has been good. A recent survey showed that among the professional managers of 28 leading investment funds, oil companies are easily the top favorites for big investments. Of each \$100 of the value of shares, \$34 was in oil stocks and \$11 in utilities.

In the light of these statistics, it certainly would appear that our industry is at least in the general area of great interest to capital. The L. P. gas business has, since its inception, demonstrated remarkable and steady growth. It might be considered among the "natural resource" industries which adds to its attractiveness. It is a *necessary* service and product supplying a large and ever increasing segment of a rapidly increasing population. People will do without a lot of things before they will go without their hot water, the convenience of gas cooking, heating and refrigeration, etc. It is a product which is *consumed* and must be replaced over and over again, year in and year out.

It is probably safe to say that the banking fraternity generally is interested in the LPG industry.

The third thing the banker looks for is *adequate earnings* competitive with the most successful operations in the same business. When an individual business or a

combine of several businesses seeks public financing it *must* be able to show satisfactory profits and the ability to pay the investor dividends competitive with industry in general. The LPG industry, and the various corporate entities within it, must offer investors as good or a better opportunity for sound and stable earnings, dividends and long term growth as they may be able to obtain in other fields along with reasonable safety and security for their investment. The banker will look at your operating statement and his eye will immediately go down to that bottom figure—your net profit. He will then look at a few other figures



Investment banking must be carried on with the highest ethical standards. Hundreds of millions of dollars change hands daily over the telephone with no signed papers, no contracts of any kind except the word of the individuals.

and in less than five minutes he generally knows whether or not he is interested in looking further. If the business, or group, cannot show satisfactory earnings it is best not to approach the banker at all. He'll simply tell you he is not interested, and once your deal has been turned down, it is usually much more difficult to go back at a later date.

The fourth "must," if a business is going to be publicly underwritten, is capable and competent management talent of *proven* ability that can inspire and *hold* the confidence of bankers and investors alike. If all other desirable factors are present, as noted above, and the management is regarded as weak and of doubtful capabilities,

then there will be no underwriting unless and until the situation is satisfactorily corrected. In the case of an individual who owns a business large enough to justify public financing, the management situation usually is no problem. The bankers and public will look to him and his organization. He could not have built what he has had he not been thoroughly capable, and after all, he has as much or more at stake in the deal as do the bankers and public. His own self-interest requires that he make the deal succeed.

In the case of a group of smaller businessmen who wish to form a combine so they have an entity large enough for public financing, the management situation becomes more complicated. Often there is one among the group in whom the bankers would have confidence as the chief executive officer and sometimes there isn't, in which event the owners will have to go outside their group to find an acceptable top manager for their enterprise. Under these conditions it is often very difficult to satisfactorily resolve the management problem.

We will assume now that our company, or group of companies, is large enough; we know that we are a part of an industry with a good history so the investment banking fraternity should be generally interested under the right circumstances; we have adequate and satisfactory earnings competitive with the best operations in the industry; and we have highly competent management of proven ability. Under these circumstances we have the most necessary component parts required for a successful public underwriting, and we should be able to obtain the interest and backing of an investment banking house of the highest caliber. The next point of consideration is our approach to the banker. What specific information should be compiled to be presented to him so that he will be able to definitely determine whether or not he is interested?

There are generally four reports which should be submitted:

1. A certified public audit for at least the last three, preferably five,

years. At this stage of the deal, a report made by most any reliable CPA firm would suffice. However, it is far better to have a report made by a nationally recognized firm as the banker can then put a lot of confidence in the figures. He knows they have not been slanted, and that nothing has been covered up so far as the official records go. It is like the sterling mark on silver. In the case of a group of owners, every company should be audited by the same firm and it most definitely should be a nationally recognized one.

2. An appraisal of the fixed assets and properties made by an independent appraisal firm of recognized standing. In the case of one large company seeking financing, this probably would not be necessary at the first meeting with the banker, although it might be required later. With a group of owners, an appraisal would be necessary, not only for the banker, but also for the individual protection of each owner. A competent appraisal of each company made by the same firm will provide every owner with an accurate value of his assets, and all will be appraised on exactly the same basis.

3. Although not always necessary, it is highly desirable to have an engineering report by a qualified firm to evaluate the present condition of the assets. It should determine whether all installations are up to code standards; whether all safety requirements are being complied with; and what investment would be required, if any, to put the assets in first class condition. Very often this report can be made by the appraisal firm, so that the two can be combined into one. Again, a group of owners must have this information for their own protection. An owner of one large company would not necessarily be required to submit this information at this point. In his case, the certified audit is usually all that is required for the banker to decide if he is interested, and from here on the banker will tell the owner what additional reports are required in order to bring the deal up to the point where the banking group can take over.

4. An intensive analytical report



The banking fraternity is interested in the LPG industry.

is absolutely essential with a group of owners, in order to present an accurate picture of each individual operation *after* all have been combined into one large entity. Such a report would look behind the audit, as it were, to determine what the *actual* earnings and expenses would be in a new situation. It would appraise the relative value of the sources of income—are they sound and of a continuing nature, or do some companies happen to have at the moment income which should be regarded as temporary because its continuance is questionable? There are also many other factors which must be considered. Such an analysis makes possible a quick, simple and accurate comparison of each company with the other, *regardless of size*, and an accurate determination of the earning power and value of every operation in the new combined situation.

To illustrate (as pointed out in our first article): The depreciation account may differ widely between companies using an accelerated schedule and those using a much slower schedule; older companies will have a lower depreciation figure than the younger companies; some companies are more heavily in debt than others, so have large interest payments. These factors obviously might make a substantial difference in the net earnings of a company but not necessarily in its earning power. Some owners pay themselves very large salaries and have large expenses while others withdraw proportionately a very much lesser amount from the business.

Another factor to be considered is the fact that many LPG busi-

nesses have other enterprises connected with them, such as an equipment manufacturing business, an engineering firm, a large factory distributorship for appliances (perhaps covering several states), a fuel oil or gasoline distributorship, a large wholesale LPG business along with the retail business; or perhaps they are in the electrical business as well.

All of these activities are fine and should be producing substantial income. Depending upon circumstances, the banker may be interested in retaining certain of these activities while disposing of others. But whatever the circumstances, the income and expenses directly connected with these other enterprises must be, insofar as it is possible, segregated in order to determine exactly what the gas business is doing. Very often an owner will temporarily use his gas profits to support other activities which are still in the development stage and losing money. This situation would give an incorrect picture of the actual profits available from gas sales.

A proper analytical report, covering at least three to five years, would also compare such vital items as the average selling price of gas, the gross margin on gas sales, the income from sources other than gas, the operating expenses and other expenses, the net return on the invested capital, etc. This would show the direction in which these items are moving. If profit margins are declining, we must determine what steps can be taken to correct the situation. If expenses have been increasing, each item of expense must be analyzed to determine which are out of line and why, and what must be done to make the operation more efficient. Many companies have allowed huge sums of money to go down the drain simply because the owner or management did not have a proper analysis of the operation.

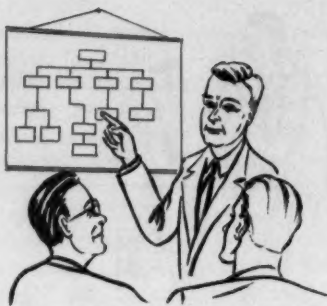
It is not the function of the audit to take into consideration all of the above mentioned factors; it simply takes the facts and figures *as they are* and certifies as to their accuracy. The analysis may make all kinds of adjustments, depending upon what has been going on in the

business, and will show what corrections can be made which may change considerably the net results of a company in the new combination. The net income as determined by the analysis may be quite different from that shown by the audit.

In the case of one owner of a large company, all four reports would be valuable in approaching the banker, but not necessarily essential. However, before selling stock to the public, permission must be obtained from the Securities & Exchange Commission. Such reports, or similar showings, would probably be required when the registration statement is filed.

With a group of owners, all four reports *are* essential, and one more thing has to be done before the banker is approached. Using the information contained in these reports, a "pro-forma" operating statement and balance sheet is prepared which will show what the group of companies will look like after they have been combined into one corporate entity. This pro-forma statement is what the underwriting will be based upon and it *must* be backed up by the foregoing factual reports on each company.

Now let's assume that you as an owner, or one of a group of owners, of one large company have done all of the preparatory work as outlined above, and you are now ready to approach the investment banker. Chances are you know the investment house to which you desire to go. In the case of a group, one of the members probably knows and understands the investment banking business and can guide and coordinate their preparation and present the deal to a qualified house. If you do not have a definite choice and feel you would like to interview several of the leading houses, you may do so for the purpose of holding preliminary talks of a very general nature. You merely have an informal discussion with the bankers, tell them generally about your business, what you would like to do, and obtain from them an expression of their possible interest, or lack of it. They may give you some valuable advice which may be helpful in the future.



A fourth must, if a business is to be publicly underwritten, is capable and competent management of proven ability that can inspire and hold the confidence of bankers and investors alike.

After a few such interviews, you should be able to make up your mind as to which financial house you feel has expressed the greatest interest and can do the best job for you. Also, the personalities involved may appeal to you much more in one house than in others. However—and this is important—you *most definitely do not* submit and discuss your reports at this time and you do not put the banker in a position where he can make a definite commitment to finance your deal. If you shop your deal around from banker to banker, leaving your reports with them and obtaining commitments from various financial houses, your actions will spread through the entire financial community like wildfire. Everybody will know about it, your deal will be "shopworn" overnight, and you may end up in the unfortunate position of looking for a berth and not being able to find one. Shopping around and obtaining commitments here and there will immediately kill a banker's en-

thusiasm. It is something that just isn't done in the financial business.

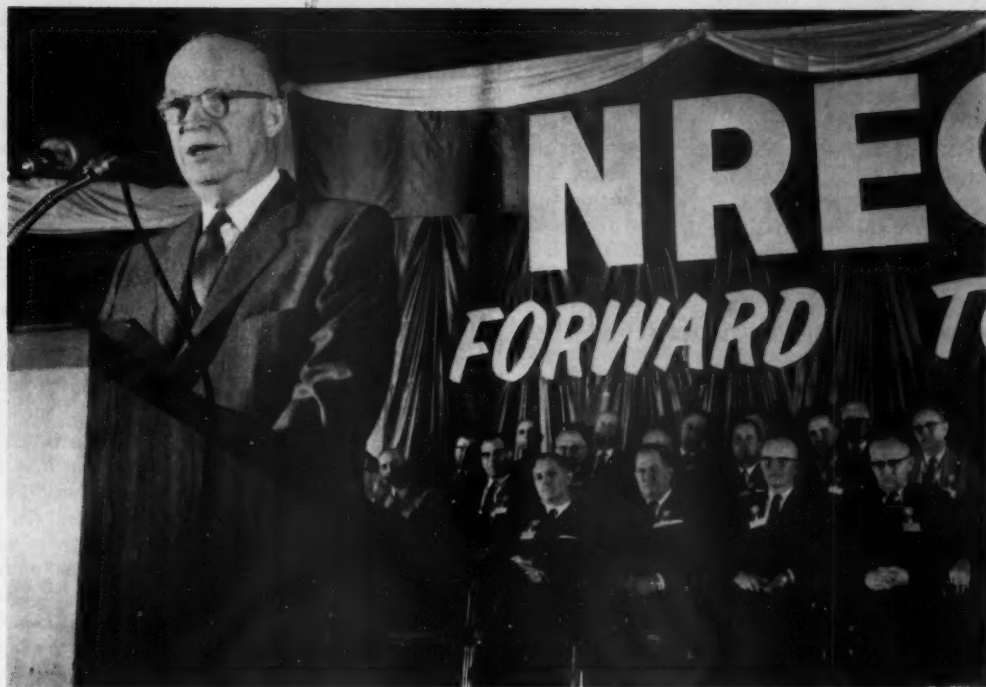
When you have decided which financial house you prefer, *then* you submit your figures and reports, and if the banker is interested, make your deal and stick with him. You should explain to him exactly what you would like to accomplish, present him with *all* of the facts, and let *him* tell *you* just how he can most successfully obtain the desired results and on what basis. He will probably suggest two or three ways in which the deal can be made, thus giving you some degree of choice. If you are fortunate enough to obtain a commitment to finance your deal from a substantial, capable banking house of the highest caliber, stay with it. But if you feel that the banker's proposal is not acceptable, then you may as well forget the whole thing and stay as you are.

Assuming the individual, or group of owners, has been successful in obtaining a definite commitment from a substantial investment banking house to finance the deal, now what happens? In our next article we will briefly trace the steps which are taken from this point on until you are in business as a publicly owned corporation. We will show how a new public stock issue is created, brought to the market, and maintained. We will also discuss the various advantages of following the public financing method in the attempt to realize a profit and secure the capital accumulation as opposed to selling out to another company, and show where the great potential growth opportunity now exists for the successful LPG dealer. ■

Coming next month in the final installment:

Once you have satisfied the investment banker that your company is a sound risk for public financing, the mechanics of an underwriting are put in motion. The procedures involved are discussed in Mr. Allard's final installment.

In conclusion, he points out the many advantages of public financing over alternate methods of protecting your capital and making it grow.



United Press International photo

A former general who is beginning to know the bitterness of defeat had another taste of it last month when his proposal for a reduction in government subsidization of REA electric co-ops met with stinging criticism. The President made his bold proposals before a conference in Washington, D. C., of the National Rural Electric Cooperative Association. The polite applause which he received was soon followed by biting rebuke.

Ike's rate proposal draws NRECA fire

NEIL R. REGEIMBAL • Washington Editor

THE battle over continued government subsidization of REA electric cooperatives is nearing the showdown stage in Washington with the co-ops far ahead on points and the apparent winner again.

President Eisenhower and his Administration have been fighting hard to gain support for their efforts to cut back the \$300 million-plus appropriated each year to help the co-ops.

But they are meeting a stone wall of resistance in Congress. The two men who together exercise almost total control over Congress both recently promised the REA co-ops that their subsidy will remain unchanged.

Senate Majority Leader Lyndon Johnson (D.), Texas, told the annual convention of the National

Rural Electric Cooperative Association in Washington in February that Congress is definitely not going to raise the interest rate on REA loans. He said he believes there is no need to boost the present limit of 2 per cent interest on loans the government makes the co-ops because the government has made a profit of \$48 million on these loans since in 1935.

The Senate leader said the White House favors raising the interest rate because the economy "is out of joint" and the government is now paying higher interest than that for the money it must borrow. But he claimed the answer is not to raise the rates, but to correct the economy. He used the chance for a slashing attack on the Republican Administration and its "slide rule

handed down from Madison Avenue."

House Speaker Sam Rayburn, also a Texas Democrat, in even stronger language assured the NRECA convention delegates that Congress would not disturb their present subsidy.

"Why not a little subsidy for the million who, until a few years ago, were the underprivileged?" Rep. Rayburn commented. The House Speaker, a co-author of the 1935 act which established the REA, also called critics of the program "demagogues." Both men supported returning the REA to independent status.

President Eisenhower took his fight to wean the co-ops away from the government's breast to the floor of the convention. In a 10-minute speech, the President amidst a

smattering of polite applause asserted that the co-ops now are strong enough to do without such federal favors as special low interest rates on loans.

The President is asking Congress again to remove the statutory interest limit on REA loans, now set at 2 per cent, so that it equals the going interest rate the government pays plus part of the cost of administering the program. This would about double the interest rate for REA loans.

In addition, the Administration is proposing legislation to reduce the actual amount of government funds which must be appropriated each year for these loans. Under the plan, a special REA revolving fund would be established. Part of the fund would be supplied by the government, but the rest would be raised from private financial sources through sales of bonds and debentures.

A third proposal, to create a special program whereby the government would insure loans REA co-ops secured from private sources so that interest rates would not be too high, was made last year but was not immediately renewed this year. This proposal drew stinging and emotional criticism from REA supporters because it would allegedly put the co-ops at the mercy of financial "robber barons."

Although the President in his appearance made no direct reference to private financing, the REA lashed back at the chief executive, claiming the Administration is "hell bent on handing us over to the Wall Street bankers and the Wall Street-controlled power companies, and they are not going to rest until they do."

At its windup, the convention by resolution of its 7000 delegates, demanded that Congress resist Administration attempts to shift financing to private sources, oppose any and all proposals to raise the present interest rate, and to restore to the REA Administrator the power to pass on all loans. (The Secretary of Agriculture now is the final authority on loans over \$500,000.)

The Association also asked Congress to protect REA systems from "territorial raids" by private

power companies; urged federal construction of atomic power generating plants; urged prompt and wholehearted congressional support of full scale water resource development; urged approval of plans to permit TVA to finance its own expansion, and approved the President's request for \$325 million in new REA loan funds for the next fiscal year.

Many top congressional leaders are supporting the REA and opposing the President.

Sen. Wayne Morse (D.), Ore., says a boost in interest rates would be a "death warrant" for many co-ops.

Senate Republican Whip Thomas H. Kuchel of California claims the "aspersions upon REA interest and loan policies constitute a threat to the magnificently successful rural electrification program."

Sen. Hubert H. Humphrey (D.), Minn., a presidential hopeful for 1960, who recently returned from a trip to Russia, claimed the Administration is seeking to suppress public power programs while the Soviet Union is gearing for all-out expansion.

Sen. John F. Kennedy (D.), Mass., another presidential hopeful, promised the REA association that Congress will "not go back on our word" by raising interest rates on REA loans.

Rep. Ancher Nelson (R.), Minn., a former REA administrator, claims that it may be necessary to consider changes in the REA interest rate at some time, but this is not the time.

However, the President's campaign is not being entirely wasted. Several of the largest REA co-ops are indicating that they will heed a suggestion of REA Administrator David Hamil and use their own funds for expansion, rather than continue receiving the subsidy 2 per cent government loans—a benefit they no longer need.

Some of these co-ops reportedly have borrowed from the government at 2 per cent while investing their own surplus funds at 4 per cent or better. There is nothing in the law to prevent this.

Administrator Hamil pointed out to the convention that 75 per cent of the 120,000 consumers added to

rural electric lines last year were not farmers. Eventually, he warned, the public will demand that REA co-ops and other similarly helped programs stand on their own feet, and he advised the co-ops to start looking in that direction now.

There are some minor cracks developing in the ranks of the co-ops over the issue. Although of little weight now, they may prelude a trend which will mean that suggestions similar to those the President now wants will go through eventually.

For instance, even the extremely "liberal" *Washington Post* has editorially suggested that "the (REA) program has fulfilled its original goals of 1935 and there is a real question whether the government should continue its present REA role. . . . Once an REA co-op is established ought it not to seek its capital in the open market as other utilities do?"

Other REA supporters of the past are also urging co-ops to re-examine their position and if possible break away from the government gradually and voluntarily to avoid the black eye fights like the one now in progress will give them.

Some REA backers are suggesting the co-ops back a program of graduated interest on government loans. Under this plan, the interest rates would vary depending on the amount of power sold by the district per mile of line. Thus, districts in sparsely settled, strictly rural regions could continue to get 2 per cent loans, but more fortunate districts would pay proportionately higher rates, with the highest rates equal to those currently charged in private money markets, backers say.

There is still some support in Congress for creating an entirely new REA-type loan program, which would be set up so that it would eventually be taken over by the co-ops and become a private lending institution.

Rep. W. R. Poage (D.), Tex., recently supported such a program. But he said that this plan is too far away from action and he believes Congress will have to continue to provide loans at 2 per cent for the time being anyway. ■

Golden Gas Co.'s claim to fame

...a framed glass (below) hung in one of the company's display windows containing a flame that has been kept going for six years

J. ARTHUR THOMPSON

THE Vestal Virgins of ancient Rome had a claim to fame: That they never let the flames die out on their altar to Vesta, the Goddess of the household and of cooking.

Ernie Knutzen, president of Golden Gas Co., doesn't claim to be descended from the Vestal Virgins, but he does have a flame that he has kept going for six years. And keeping that flame going has proven to be mighty good advertising.

When Golden Gas Co. opened its new place of business in September of 1953, at 11598 West Colfax, between Lakewood and Golden, Colo., Knutzen wanted a window display that was different.

He took two pieces of glass, about 42 x 22 in. and set them in a thin metal frame so that the panes of glass were approximately $\frac{1}{4}$ in. apart. These were sealed in gas tight. A $\frac{1}{4}$ -in. copper tubing was led into one corner of the frame.

In the center of the outer pane of glass a very small hole was bored and a piece of small glass tubing about $2\frac{1}{2}$ in. long was cemented in. The framed glass was hung in one of the display windows. A special regulator giving less than an ounce of pressure was placed in the line and the line then hooked up to the

regular service tank for the building. The flame was lighted and it has been burning ever since.

At first glance the flame appears to be suspended in midair with no means of support and the tube feeding the gas to it is not visible.

The location of the Golden Gas Co. office has little pedestrian traffic past it, yet hundreds of people stop to look at this small flame and to ask about it. High schools in the vicinity sometimes bring their science classes to look at it and to get a little first hand knowledge of some of the properties of gas.

What better advertising could one ask for?

Knutzen suggests that if anyone builds a similar display, he should be sure to keep the pressure down under an ounce. That is plenty for the requirements of the small flame, and avoids the possibility of leaks around the frame or damage to the glass. ■



The location of the Golden Gas Co. office has little pedestrian traffic past it, yet hundreds of people stop to look at the small flame and to ask about it.

CHARLES MacSPORRAN • Engineering Dept., Phillips Petroleum Co.

BUTANE-PROPANE News



*Mr. Henry C. Haar, partner, Acme Butane
& Appliances, Fresno, California, says:*

"Our Ford C-800 services 100 more accounts

"This Ford Tilt with Transmatic Drive gives us 550 gallons more product per trip, faster trip time and greater maneuverability

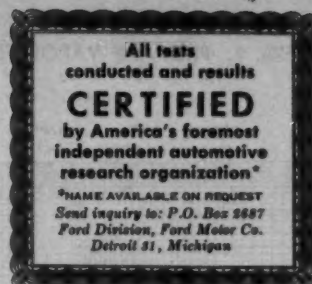
"We selected a Ford Tilt Cab model because it provided better weight distribution and let us carry about 550 gallons more product on 2 ft. less over-all length. This is important because we operate in the mountains where a short turning radius is a tremendous factor.

"The performance of our Ford C-800 has been very good! Transmatic Drive means

more deliveries per day because we get up to speed faster, and hold it longer. For example, this unit with 550 gallons more payload will take the Walker grade on Route 41 at 20 mph versus 6 mph for one of our other units. The hydraulic retarder is a real help on the way down.

"Also, we liked the beauty and the visibility you get with this Ford Tilt Cab model. We checked the others and thought the Ford was better built. Another advantage in favor of Ford was the price—we saved well over \$1000.00 on initial cost alone."

NOW!
CERTIFIED PROOF
FORD TRUCKS
COST LESS



'59 Ford Pickups Win Economy Showdown U.S.A. —average 25.2% better gas mileage!

Impartial tests of the 1959 pickup models of all six makes prove conclusively that Ford's ½-ton pickups equipped with Short Stroke Sixes are the economy champs for '59.

HOW TESTS WERE MADE

Standard six-cylinder models of the six leading half-ton pickups first were put through exhaustive road trials. All '59 trucks—Ford and competitive—were bought from dealers, just as you would buy them. After at least 600 miles break-in, all were brought up to manufacturer's recommended specifications.

The trucks were then tested — by America's leading independent automotive testing firm—at constant speeds of 30, 45 and 60 miles an hour. Next came stop-and-go tests, ranging from moderate city traffic to normal retail delivery operation. Acceleration rates were carefully timed in each gear to insure accurate results for all makes.

HOW NEW '59 SIXES RATE IN GAS MILEAGE

'59 FORD SIXES GIVE	25.2% more miles per gallon than Make "C"	31.1% more miles per gallon than Make "I"	9.6% more miles per gallon than Make "G"	42.6% more miles per gallon than Make "D"	22.0% more miles per gallon than Make "S"	25.2% more miles per gallon than the average of all makes
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The '59 Ford Sixes, *in every test*, averaged more miles per gallon than every other make! Combining all tests, the '59 Fords led the average of all other '59 pickups by 25.2%.

WHAT'S THE SECRET?

How can a '59 Ford Six make four gallons do the work of five in other trucks?

First, of all pickup Sixes, only Ford has modern Short Stroke design. This new type of engine is basically far more efficient than long-stroke Sixes of other pickups. Example: Ford's Six delivers more usable horsepower than any other pickup Six.

Second, to this modern engine Ford has added a new economy carburetor. By metering fuel more precisely in both low- and high-speed ranges, Ford's new carburetor boosts gasoline mileage in every type of driving. And Ford's Economy Carburetor is standard at no extra cost.

Your Ford Dealer now has the complete report of Economy Showdown U.S.A. Why not call or visit him today and get the whole story firsthand?

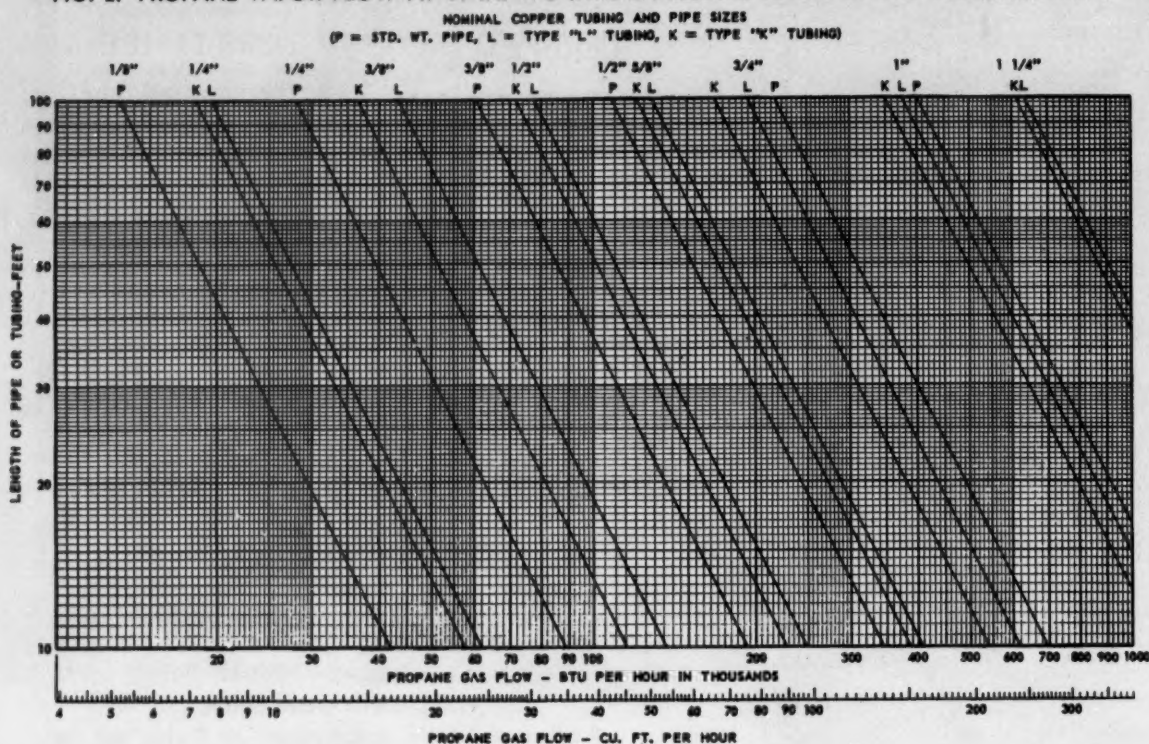
per month!"

Go FORDWARD for savings

**FORD
 TRUCKS
 COST
 LESS**

**LESS TO OWN . . . LESS TO RUN . . .
 LAST LONGER, TOO!**

FIG. 2. PROPANE VAPOR FLOW AT 11 IN. WC INITIAL PRESSURE AND 1 IN. WC PRESSURE DROP



THIS CHART IS BASED ON THE FOLLOWING FORMULA

$$Q = C \sqrt{\frac{P_1 - P_2}{S L}}$$

Q = STU/HR.
C = 2,522,000

4 = I.D. IN INCHES
P₁ = INITIAL PRESSURE IN INCHES OF WATER
P₂ = FINAL PRESSURE IN INCHES OF WATER
S = SPECIFIC GRAVITY, AIR = 1.00, PROPANE = 1.52
L = LENGTH IN YARDS

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understood as to what they mean and how they are determined. They are:

1. Allowable pressure drop
2. Length of piping
3. Maximum rate of flow

1. *Allowable pressure drop.* Pressure drop (or pressure loss) is a measure of resistance to flow of the gas or liquid. It is the result of friction, turbulence and other restrictions. The smoother the inner surface of the pipe, the less friction; the fewer bends, kinks, valves and fittings, the less turbulence and restrictions. The allowable pressure drop is a limit demanded by operating and other conditions. In the case of the subject piping systems, the allowable pressure drop in low pressure piping is determined by the permissible variation in pressure at the appliances, for satisfactory performance of the burners. In the case of medium pressure piping between the first and second pressure regulators, it is usually a set figure of approximately 10 per cent of the first stage regulator setting or initial pressure.

The maximum permissible pressure variation in the L.P. gas appliance burner manifold is minus 3 in. wc, from the standard setting of 11 in. wc. But we should use a figure considerably less than that, if possible. The narrower the pressure variations the more constant is the rate of heat input to the gas burner. For example, if the pressure variation is only

1 in. wc less than 11 in. wc the drop in heat input is only 4 per cent, but if the variation is 3 in. less than 11 in. the heat input drops by approximately 15 per cent.

Although it is mentioned that —3 in. wc is a tolerable pressure variation, it would be unwise to use this figure as the maximum allowable pressure drop if it were possible to do so. The first consideration must always be given the burner performance. Many L.P. gas companies use 1 in. wc as the maximum, whereas others choose 0.5 in. In this discussion

TABLE 2. EQUIVALENT LENGTH OF PIPE, FOR PRESSURE DROP THROUGH FITTINGS

Normal Pipe Size	Globe Valve Feet	90-deg. El. Feet	Tee Side Outlet Feet	Tee Straight Through Feet
3/8 in.	12	0.50	1.1	0.3
1/2 in.	16	0.89	1.3	0.4
3/4 in.	20	1.3	1.9	0.6
1 in.	28	1.7	2.5	0.8
1 1/4 in.	38	2.4	3.6	1.2
1 1/2 in.	44	2.9	4.3	1.4
2 in.	56	4.0	5.9	2.0
2 1/2 in.	68	5.0	7.4	2.5
3 in.	82	6.7	9.8	3.3



...little things mean a lot

The little extras in service and co-operation offered by Sid Richardson Gasoline Co. give our customers many extra worth-while benefits.

In addition to our day-to-day, week-to-week, month-to-month co-operation, we are always on time with top quality products delivered at a competitive price. We invite an opportunity to tell you about the little extra things we do to make your operations easier and your profits greater.

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GASOLINE CO.

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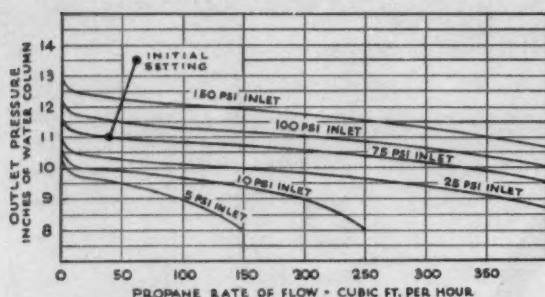


Fig. 3. Typical performance curve of single-stage low pressure regulator-propane.

1 in. pressure drop is suggested as the maximum in piping systems not metered, and 0.5 in. for low pressure metered installations.

To arrive at the 1 in. wc maximum allowable pressure drop we need only look at the typical single stage pressure regulator performance curve, shown in Fig. 3, to understand the reason for it. It will be seen that the outlet pressure drops with increase in flow. It will be seen, too, that the outlet pressure also drops with a decrease in inlet pressure. From the standard setting of 11 in. wc at 30 cfm at 75 psig inlet pressure, the outlet pressure drops 2 in. wc at a flow of 200 cfm at 10 psig inlet. This being the case, we quickly figure that only 1 in. pressure drop can be tolerated in the piping system, if we accept —3-in. wc being the maximum permissible pressure variation at the appliance. Most single stage regulators are rated with low inlet pressure at 10 psig and minimum outlet pressure of 9-in.

In two-stage pressure regulator systems, the variation in outlet pressure of the second stage unit is relatively constant, by virtue of the inlet pressure being nearly the same at all times. However, we should have no intention of taking advantage of this fact, to increase the allowable pressure drop in the piping system.

2. Length of piping. In addition to the developed length of piping between the pressure regulator and the appliance, we must add an "equivalent length of piping" for fittings, valves and other restrictions as a convenient measurement of pressure drop through such restrictions. Refer to Table 2 for the equivalent length of pipe of various size fittings.

3. Maximum rate of flow. This is a measurement of the maximum heat input to the appliance burners, expressed in Btu per hour, or cubic feet per hour. To convert Btu value to cubic feet, divide by the respective per-cubic-foot heating values of the vapors at 60 deg. F and 14.7 psia. For propane vapor, use 2522, for butane vapor use 3261.

The heat input ratings can be taken directly from the appliance nameplate, or from the manufacturer's catalog.

The question may be asked if a load factor should be applied when figuring the maximum rate of flow. During the period of any one day it is seldom that all appliances will be operating at their rated heat input and at the same time. Therefore, it might be asked, should a load factor be applied when figuring

the maximum rate of flow? In the interest of safety and burner performance it is always advisable to size the pressure regulator and the piping for the maximum possible flow. The regulator cannot handle flow rates in excess of its capacity, even momentarily, without excessive pressure drop. It is unlike the fuel container, which can respond momentarily to demand in excess of its normal vaporizing capacity. Increased flow rates through the piping system means increased pressure drop. Since $\text{Flow} = K \sqrt{\text{Pressure Drop}}$ it would mean, for instance, that with the system sized for 1-in. wc pressure drop an increase of 50 per cent in flow rate would result in a pressure drop of 2.25 in. wc. Double the flow rate would result in a pressure drop of 4 in. So rather than risk excessive pressure variations, and possibly unsafe operation, it becomes advisable to ignore the load factor in sizing piping systems, particularly domestic and small commercial L.P. gas installations.

Before using the flow charts one important equation should be understood, in relation to length of piping versus pressure drop. The formula

$$Q = C \sqrt{\frac{d^5 (P_1 - P_2) \times 3}{SL}}$$

can be expressed as

$$\left(\frac{Q^2 \times S}{C^2 \times d^5 \times 3} \right) \times L = P_1 - P_2 \text{ or, } K \times \text{Length} \\ = \text{Pressure Drop}$$

K being constant =

$$\left(\frac{Q^2 \times S}{C^2 \times d^5 \times 3} \right) \text{ and } P_1 - P_2 = \text{Pressure Drop}$$

Therefore, for one size of pipe having Q, S, C & d constant, the pressure drop is directly proportional to the length. For instance, with constant flow conditions, such as flow rate, diameter of pipe, and specific gravity involving a 20 ft length of pipe with 1-in. wc pressure drop, at 10 ft the pressure drop will be $\frac{10}{20} \times 1 \text{ in.} = 0.5 \text{ in.}$ At 30 ft length the pressure drop will be

drop will be $\frac{30}{20} \times 1 \text{ in. wc} = 1\frac{1}{2} \text{ in. wc.}$

To read the charts, it is a simple matter of finding the propane gas flow point on the bottom horizontal scale and the length of piping involved in the left hand vertical scale, then finding the point of intersection by projecting the points vertically and horizontally, respectively. If the point of intersection is on the oblique lines, marked P, K or L as the case may be, or to the left of it, that particular size of pipe or tubing is satisfactory; but, if the point of intersection is on the right hand side of the line, then that size of pipe or tubing is too small.

The point of intersection which coincides with any of the oblique lines and at any point along their length will measure the maximum rate of flow and maximum length of piping or tubing, as the case may be, for the pressure drop upon which the chart is based. For instance, by referring to Fig. 2 and taking a random point of intersection as the oblique line $\frac{1}{2}$ L at 60 ft length, we find that for 1-in. wc pres-

"Stand-by" operation on a trickle of current.

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Lower Battery Drain—No need now for heavy duty batteries and generators. Current drain on "stand-by" is 1/3 that of tube-type receivers, 1/15 with battery saver switch.

Greater Reliability—Transistors, printed circuits and new design all greatly increase reliability.

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Completely transistorized receiver and power supply... Another Motorola First!

Here is 2-way radio with efficiency and reliability never before approached in mobile radio. No more tubes in the receiver —no more vibrators in the power supply . . . all are replaced by long life, dependable transistors. No longer is it necessary to idle the vehicle to keep the radio operating. Savings in gasoline, engine wear and batteries add up fast. Let us prove to you how MOTRAC radio will cut your radio operating costs . . . while giving you reliability never before possible. Write today.



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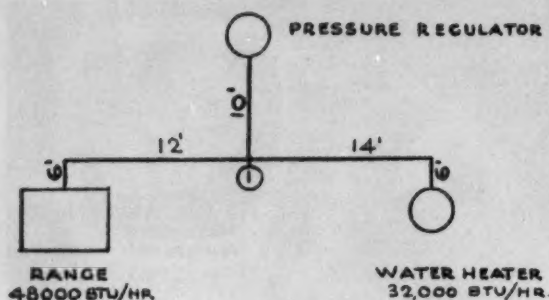


Fig. 4.

sure drop 60 ft of $\frac{1}{2}$ -in. type L tubing will pass only 100,000 Btu per hour. But at 30-ft length at a flow rate of 100,000 Btu per hour the pressure drop will be $\frac{30}{60} \times 1$ in. or 0.5 in. (pressure drop is directly proportional to the length).

For single runs of piping having pressure drops the same as those upon which the charts were calculated, the size of pipe or tubing can be chosen directly. However, for lengths of line having a fraction of the basic pressure drop, it is necessary to take a preliminary step by dividing the known length by the fractional pressure drop, in order to obtain the equivalent length of line at the basic pressure drop. Having found the equivalent length, the piping size then can be chosen directly (again, pressure drop is proportional to length).

For example, refer to Fig. 2 once more. If a 30-ft length of line passing 100,000 Btu per hour L have 0.5-in. pressure drop, what is the size of tubing required? Equivalent length is $\frac{30}{0.5} = 60$ ft. The point of intersection of 60 ft and 100,000 Btu-per-hour is found to be $\frac{1}{2}$ -in. type L tubing.

Sizing piping systems

Although it has been stated that the maximum allowable pressure drop of the low pressure piping system is 1-in. wc, it may not be possible to choose piping sizes having a pressure drop of exactly 1-in. wc. One size of standard pipe or tubing may be too small and the next larger size too large to satisfy the exact pressure drop.

In sizing single lengths of line such as connecting the two pressure regulators of a two stage regulator system, the piping size can be read directly from the chart in Fig. 1. Or, for single lengths connecting the second stage regulator and the gas appliance, the piping size can be read directly from the chart in Fig. 2.

In sizing complex piping systems having many laterals served by one or more manifolds, the process of sizing is not so simple. Then it becomes necessary to size the system for each individual length of run and its carrying capacity. In the complex system we must start sizing the system at the pressure regulator outlet (the piping run carrying the greatest gas flow rate), then figuring in succession each run having the next largest gas flow rate, and so on. By this method of sizing, it may be found that the total

pressure drop between the regulator and one or more of the appliances exceeds 1 in.

In the complex system the assumption is made, and correctly so, that each length of manifold piping is accurately sized for its length and carrying capacity and for its proportion of the maximum allowable pressure drop. In other words, the methods provide for the minimum size of piping throughout except for the lateral connections between the manifold and the appliance, which by necessity may be oversized.

Problem No. 1 (See Fig. 4)

A gas range (48,000-Btu-per-hour rated heat input) and a water heater (32,000-Btu-per-hour) are served by one single stage pressure regulator set 11-in. wc. Size the piping system for an allowable pressure drop not exceeding 1 in. between the regulator and the appliances. The piping lengths shown on the diagram include the "equivalent length of piping" for tees and elbows in the piping.

1st Step. Size piping between the regulator and point 1.

Total rate of flow = 32,000 plus 48,000 Btu = 80,000 Btu per hour.

Length of line = 10 ft.

Referring to Fig. 2, it becomes quickly obvious that $\frac{1}{4}$ -in. tubing is too small, since the 80,000-Btu-per-hour point on the horizontal scale is to the right of its oblique line. The next size, $\frac{3}{8}$ -in. type L, appears satisfactory. Projecting a vertical line from the 80,000-Btu point on the scale to the point of intersection with the oblique $\frac{3}{8}$ -in. type L line, we find that the corresponding length of line is 29.5 ft for 1-in. wc pressure drop. Therefore, the pressure drop

between the regulator and point (1) is $\frac{10}{29.5} = 0.34$ in.

2nd Step. Size the piping between point (1) and the gas range.

Rate of flow = 48,000 Btu per hour.

Length of line = 6 + 12 = 18 ft.

Referring to Fig. 5, we find that $\frac{1}{4}$ -in. type L tubing is too small, since the point of its intersection at 48,000 Btu per hour corresponds to a length of 17 ft (which is 1-in. wc). Having only 1.0 minus 0.34-in. wc or 0.66-in. wc to spare, we must choose $\frac{3}{8}$ -in. tubing. The pressure drop is 18 ft of $\frac{3}{8}$ -in. L

tubing will be $\frac{18}{80} = 0.22$ in. wc. Total pressure drop between the regulator and the gas range is now $0.34 + 0.22 = 0.56$ -in. wc.

3rd Step. Size the piping between point (1) and the water heater.

Rate of flow = 32,000 Btu per hour.

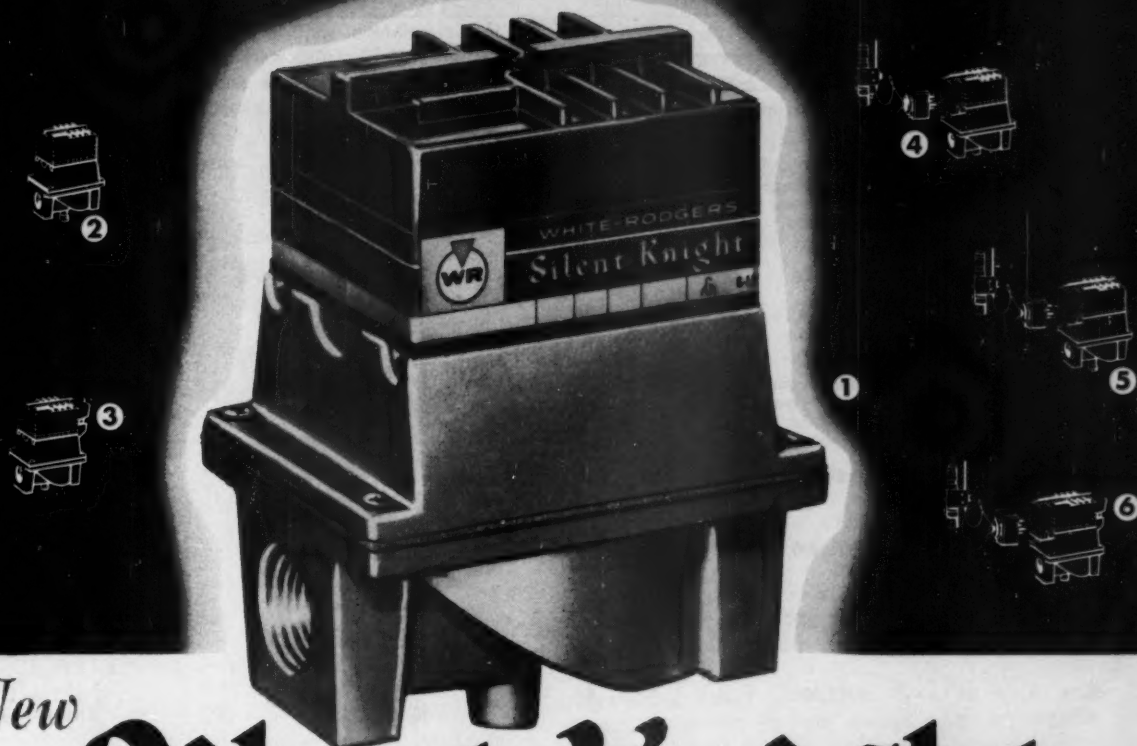
Length = 14 + 6 = 20 ft.

Referring to Fig. 2, it is quickly obvious that $\frac{1}{4}$ -in. tubing is large enough.

The point of intersection of the $\frac{1}{4}$ -in. L line and 32,000-Btu-per-hour projection shows a corresponding length of 37 ft. Pressure drop between point (1) and

the water heater is $\frac{20}{37} = 0.54$ in. wc. Total pressure drop between the regulator and appliance is $0.34 + 0.54 = 0.88$ -in. wc.

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Problem No. 2 (See Fig. 5)

Size the piping system to serve the appliances as shown on the diagram. First stage regulator setting is 15 psig. Second stage regulator setting is 11-in. wc. Maximum allowable pressure drops in the line between

the regulators shall be 1.5 psig and between the second stage regulator and the appliances 1-in. wc.

Proceed to solve the problem by first sizing the medium pressure tubing between the first (R1) and

1st Step. Sizing the medium pressure tubing (refer to Fig. 1):

Run	Rate of Flow Btu/hour	Length (feet)	Pressure Drop PSIG	Tubing Size
R1 to R2	181,000	40	$\frac{40}{170} \times 1.5 = .023$	$\frac{3}{8}$ in. Type K
$\frac{1}{8}$ in. pipe too small.				

2nd Step. Sizing the manifold system (refer to Fig. 2):

Run	Rate of Flow Btu/hour	Length (feet)	Pressure Drop Inches wc	Tubing Size
R2 - 5	181,000	6	$\frac{6}{19} \times 1 \text{ in. wc} = 0.315$	$\frac{1}{2}$ in. Type L
5 - 4	111,000	12	$\frac{12}{50} \times 1 = 0.240$	$\frac{1}{2}$ in. Type L
4 - 2	76,000	7	$\frac{7}{32} \times 1 = 0.220$	* Change to $\frac{1}{2}$ in. $\frac{3}{8}$ in. Type L
2 - 1	73,000	8	$\frac{8}{35} \times 1 = 0.230$	$\frac{3}{8}$ in. Type L * Change to $\frac{1}{2}$ in.
4 - 3	35,000	16	$\frac{16}{31} \times 1 = 0.52$	* Change to $\frac{3}{8}$ in. $\frac{1}{4}$ in. Type L
5 - 7	70,000	8	$\frac{8}{38} \times 1 = 0.210$	$\frac{3}{8}$ in. Type L
7 - 6	52,000	6	$\frac{6}{14.5} \times 1 = 0.415$	* Change to $\frac{3}{8}$ in. $\frac{1}{4}$ in. Type L

* Size change to satisfy total pressure drop.

3rd Step. Sizing the lateral tubing connecting each appliance to its manifold system:

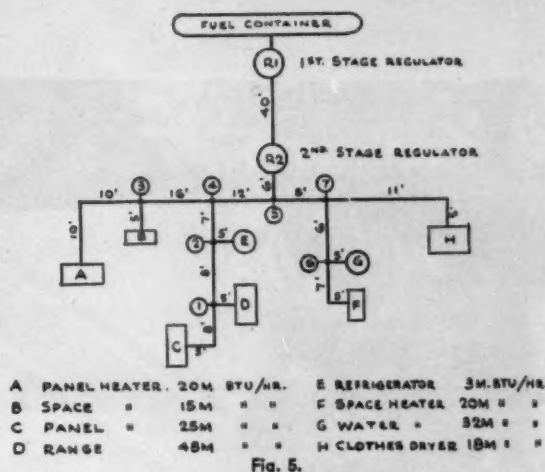
Appliance	Rate of Flow Btu/hour	Length (feet)	Pressure Drop Inches wc	Tubing Size
A	20,000	20	$\frac{20}{100} = 0.20$	$\frac{1}{4}$ in. L
B	15,000	5	Very Small	$\frac{1}{4}$ in. L
C	25,000	13	$\frac{13}{60} \times 1 = 0.216$	$\frac{1}{4}$ in. L
D	48,000	5	$\frac{5}{81} \times 1 = 0.062$	$\frac{3}{8}$ in. L
E	3,000	5	Very small	$\frac{1}{4}$ in. L
F	20,000	12	$\frac{12}{100} \times 1 = 0.120$	$\frac{1}{4}$ in. L
G	32,000	5	$\frac{5}{37} \times 1 = 0.135$	$\frac{1}{4}$ in. L
H	18,000	16	$\frac{16}{100} \times 1 = 0.160$	$\frac{1}{4}$ in. L

4th Step. Totalize the pressure drops in the runs to each appliance.

Appliance	Run	Pressure Drop Inches WC	*Pressure Drop After Adjustment, Inches WC
A	R2 - 5	0.32	0.32
	5 - 4	0.24	0.24
	4 - 3	0.52	0.05
	3 - A	0.20	0.20
	Total	1.28	0.81
B	R2 - 5	0.32	0.32
	5 - 4	0.24	0.24
	4 - 3	0.52	0.05
	3 - B	0.01	0.01
	Total	1.09	0.62
C	R2 - 5	0.32	0.32
	5 - 4	0.24	0.24
	4 - 2	0.22	0.05
	2 - 1	0.23	0.04
	1 - C	0.22	0.22
	Total	1.25	0.87
D	R2 - 5	0.32	0.32
	5 - 4	0.24	0.24
	4 - 2	0.22	0.05
	2 - 1	0.23	0.04
	1 - D	0.06	0.06
	Total	1.07	0.71
E	R2 - 5	0.32	0.32
	5 - 4	0.24	0.24
	4 - 2	0.22	0.05
	2 - E	0.01	0.01
	Total	0.79	0.62
F	R2 - 5	0.32	0.32
	5 - 7	0.21	0.21
	7 - 6	0.42	0.07
	6 - F	0.12	0.12
	Total	1.07	0.72
G	R2 - 5	0.32	0.32
	5 - 7	0.21	0.21
	7 - 6	0.42	0.07
	6 - G	0.14	0.14
	Total	1.09	0.74
H	R2 - 5	0.32	0.32
	5 - 7	0.21	0.21
	7 - H	0.16	0.16
	Total	0.69	0.69

second stage (R2) regulators. Next, size the low pressure manifold system starting at the regulator (R2). Then proceed to size the lateral tubing connecting each appliance to its manifold system. As each length of tubing is sized, determine its pressure drop, as explained in problem No. 1. After the entire piping system is sized, totalize the individual pressure drops between regulator R2 and each appliance, to make sure that the total does not exceed 1 in. Should the total pressure drop exceed 1 in. at any one appliance, it will be necessary to increase the size of the tubing in one or more of the runs.

*The 4th step reveals that the total pressure drop



to all appliances except E and H exceed 1-in. Therefore, one or more runs of tubing must be enlarged.

By changing run R2 - 5 from $\frac{1}{2}$ -in. to $\frac{3}{8}$ -in. the pressure drop would be reduced from 0.31 to 0.11. This reduction would nearly satisfy all cases, but the $\frac{3}{8}$ -in. size would mean an awkward tee connection at point 5.

Increasing run 4 - 3 from $\frac{1}{4}$ -in. to $\frac{3}{8}$ -in. will reduce the pressure drop considerably to satisfy appliances A and B.

Increasing run 4 - 1 from $\frac{3}{8}$ -in. to $\frac{1}{2}$ -in. will reduce the pressure drop by approximately 0.38-in. wc, which will satisfy appliances C and D.

Increasing run 7 - 6 from $\frac{1}{4}$ -in. to $\frac{3}{8}$ -in. will reduce the pressure drop considerably to satisfy F and G.

As mentioned before, it is not always possible to arrive at an exact pressure drop of 1-in. wc to each appliance in a complex system such as the problem just solved. The pipe or tubing sizes to select from may be either too large or too small.

Conclusion

The steps taken in working out problems No. 1 and 2 may have seemed somewhat lengthy and laborious, but they have helped you become familiar with the method used. As you work out problems of your own on the job you will find that the method is really quite simple and direct.

The same methods may be used for much larger and more complex piping systems than have been illustrated. However, in large installations careful consideration must also be given to the piping layout, the need for separate low pressure regulators serving large heating loads, and the turndown requirements from maximum to minimum gas demand (which may dictate the pressure regulator selection), etc. The design of the gas distribution system is a separate study of its own, but one which your product supplier can help you figure out if necessary.

*The work tables for steps 2 and 4 reflect the changes made above. From the work table of step 4 it will be seen that the total pressure drop to each appliance is now less than 1 in.



These tiers of cylinders (left) represent expansion with limited capital for Ray Knudson, owner, Woodley Hills Bottled Gas Co., located a few miles south of Alexandria, Va. Through a cylinder leasing program, capital was released to enable Mr. Knudson to expand his business.

Leasing makes diversification possible, helps this small dealer grow

RAYMOND KNUDSON is a man who is quick to grab at the brass ring of opportunity whenever it whirls past.

There was the time in 1952, when a friend who operated a trailer park was looking for someone to supply his customers with L. P. gas. That's when Ray Knudson decided to go into the gas business.

Later on, the trailer parks he was serving began wanting fuel oil. So he went into that business, too.

A year or so ago, wanting a new location, he found a 15-unit motel, reasonably priced, with ample space alongside for operating a fuel business. So he bought it, and now he's a motel man.

Today, new markets are continuing to open up for LPG in his ter-

ritory. Servicing them requires capital, which Ray Knudson doesn't have. But—ever the opportunist—he has found a way to use someone else's capital to tap them.

Knudson is a shoestring operator. For upwards of five years he worked almost without profit, and the going was slow. He took only those accounts he knew he could handle, because he was chronically undercapitalized. He had to be an opportunist to survive and grow.

Today, despite the recession and higher-than-normal receivables, he is coming out of the woods. He is at long last beginning to build a little operating capital, thanks in large part to a cylinder-leasing program which is enabling him to take full advantage of some profitable

short-term loads and to extend his base load operations into the domestic field.

Basically, Knudson's market still lies in the trailer park business. His Woodley Hills Bottled Gas Co., located a few miles south of Alexandria, Va., and hardly more than a silver dollar's throw from Mt. Vernon, historic home of George Washington, is in the middle of a large and growing trailer court market. His plant fronts on Route 1, the Richmond highway, not far from Washington, D. C. The region abounds in trailer courts, for Washington is at the same time a city of constantly shifting population, a tourist mecca, and the temporary duty headquarters of a large slice of the military.



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make during the last six months of 1959! You earn "Dealer Dollars" the first six months . . . you spend 'em the last six months! Contact your Temco distributor for full details on "Dealer Dollars" and how they help you buy and save on the "selling-est" line for '59!

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The "New Home of Woodley Hills Bottled Gas" is not too prepossessing now, but it's a substantial step forward for Mr. Knudson. By leasing his cylinders, he was able to invest in the property itself, thereby gaining a showroom, a motel, and ample room for expansion.



When Knudson first went into the business, his "plant" was located on the trailer park grounds and his rolling stock was a pickup truck, which he used to shuttle bottles back and forth to the Suburban Propane bulk plant some 18 or 20 miles away. Soon after he had established himself in the trailer park, he began branching out into other parks nearby.

This was strictly a one-man show (abetted by his wife, a government employee, who kept books for him after hours). Capital investment was negligible, and so was profit. Alone he made three or four trips each week to the Suburban plant, and serviced what accounts he could handle without assistance. That was the sum total of his business operation.

But opportunity kept knocking, and undercapitalized though he was, Knudson felt compelled to take it as it came. In 1953, he spotted a market among his trailer park customers for fuel oil, so he took the jump—but, in typical fashion, cautiously. He bought one tank truck and began filling orders as he got them. At about the same time, he found some homes that needed gas, so he strained his modest finances as far as he justifiably could to supply them in 100-lb cylinders. As usual, his finances, not the market potential, were the limiting factor.

The next move was a natural one. Trailer owners preferred to have their bottles filled on the spot, and now that he had a solid, sizable clientele, Knudson felt he could perform this service. So in 1954 he bought a 1000-gal. tank truck and

began hauling his own gas from the bulk plant.

By April of 1956, Woodley Hills Bottled Gas had outgrown its trailer park location, so Knudson packed up and moved down the highway a few blocks. Here he installed a 500-gal. tank and a portable bottle filling unit. This attracted transients who liked to stop en route and pick up their own gas.

He also began to sell a few appliances out of catalogs, and he continued to invade the domestic and commercial markets, still carefully refraining from overextending himself.

During the ensuing year and a half, he kept up his slow, but steady, growth. Ultimately he was servicing some 25 trailer parks, scattered throughout the adjoining counties of Fairfax and Prince William, containing among them between 1000 and 1500 separate trailer homes. He had about 500 domestic cooking and water heating customers, using 100-lb. cylinders. His commercial trade, including motels and restaurants, numbered about 100. He was employing three men, one full-time and two part-time, plus an office girl. He was carrying a moderately large credit load on his books.

It was a sound business. The trailer market was—and is—still growing, and it becomes a more substantial type of business as the years go by. As a group, Trailerites are not the footloose wanderers they once might have been. They stay put for months, or years, at a time. They are steady people, and for the most part good credit risks. Knudson has made credit selling the

foundation of his business, and he hasn't had cause to be sorry yet.

"I assume that 90 per cent of the people are honest," says Knudson. "But I still use judgment and caution in okaying their credit." One basis of this judgment is the trailer park itself. The better trailer parks attract a better and more reliable clientele, he believes.

More and more service families are using trailers now, according to Knudson—partly, he says, because the government is now giving an extra travel allowance for toting a trailer along. This type of life is a logical choice for the typical peripatetic serviceman.

Trailer life is also winning devotees from among the ranks of the more affluent segments of the population. Many people today are willing and eager to pay \$10,000 or more for a luxurious home on wheels, and the trailer coach manufacturers are catering to their every whim. Some models today even come equipped with washing machines.

Consequently, the gas load continues to grow. Cooking-only customers were once the majority, but not any more. Water heating is picking up fast; so is space heating. This all means a deeper market saturation. When a cooking-only customer adds water heating, he goes from a bottle every three weeks to one a week. Add space heating and you have two a week.

Yes, it was a good business, but it had its problems. Carrying a credit load that averages 50 per cent of total sales, and sometimes goes as high as 75 per cent, put a permanent dent in his operating capital. Furthermore, having to keep accounts and produce statements for 1000 to 1500 small-volume users was very costly. This problem Knudson has partially solved by changing over to a simplified billing system which cuts paperwork to a minimum, enables him to render several statements from a single writing, and has a built-in follow-up system.

Another problem was peak loads. Even without space heating, usage grows in the winter, when the cookstove provides some measure of warmth. In the summer, especially during a typical heat wave for which Washington is so famous, not only does this load collapse, but

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Main building at "Sky View Lodge" combines showroom, offices, parts room, and several of the 15 motel units. Bottle-filling facilities are at left.

even cooking itself drops off close to zero. Home-cooked meals give way to sandwiches, salads, and cold snacks, and the trailerite frequently deserts his tiny home for the comforts of an air-conditioned restaurant.

Thus the load for cook-only customers drops off by one third in the summer with water heating and space heating added, the ratio goes further out of joint—sometimes to 2 or 2½ to one.

While this situation is not a serious one, it does present difficulties—not the least of which is that, come summer, Knudson has had to lay off help.

This was the way the business stacked up late in 1957. Profits were still eluding him. Additional mar-

kets were there, waiting to be tapped, but Knudson lacked the tools with which to tap them. The domestic market, for one, warranted further exploitation. He didn't even dare think of trying to cut himself a slice of industrial or agricultural markets—they were 'way beyond his ability to equip and service.

It was then that he came face to face with a new threat: his lease was due to expire the following April, and it appeared that his rent would be substantially increased. That pitched him right onto the horns of a dilemma.

To pay a higher rent, he needed greater profits. To make more profits, he needed more business. To get more business, he needed more capital for investment. To carry more business, he needed more operating capital.

Knudson found a way out of his dilemma—a new home. Instead of investing in more cylinders and equipment, he put what capital he could scrape up into property.

His monthly payments were much smaller than the rent he was paying. This released capital for operating. The money he might have sunk in new cylinders was put into a new and better home for his plant. The property he bought will appreciate, not depreciate, as the years go by. The cylinders he needed to expand he leased from the LPG Leasing Corp., so it's the corporation, not he, who must worry about their depreciating. Today, during temporary dips in business, he can gaze out his office window and contemplate the elongated tiers of cylinders on hand without wincing at the thought of the idle, frozen capital they could represent.

The new home of Ray-Gas (Knudson's trade name) is built around a 15-unit motel, which represents diversification and an "off-peak load." "Someone must be here all the time anyway, so the motel won't require any extra manpower," reasons Knudson, who lives in a comfortable house at the rear of the lot. Besides it gets its heaviest play in the warmer months, when the oil and gas businesses slacken off. It provides employment for his men during those periods when he might be forced to lay them off.

The location has additional advantages. The lot is large, allowing plenty of room for expansion. The motel offices, which were spacious, contained enough room for a parts supply, gas offices, and a small showroom.

The value of the property is bound to go up. Right next door a shopping center is about to rise, anchored by a supermarket of modest size but attractive appearance.

Now that he owns his own place, Knudson feels more secure about expanding. He laid in an initial stock of 275 leased cylinders. These will serve a dual purpose. As he can, he will add new domestic customers; but in the meantime, the cylinders give him a good standby margin for emergency calls from contractors. When a cold snap hits in the middle of a construction job, they give him a hurry-up call for cylinders for on-the-job space heating with salamanders. This keeps the men warm and at the same time helps cement to set and plaster to dry.

"I have three contractors who in a single week can take as many as 100 cylinders among them," says Knudson. "So I've got to keep a stock on hand—or run out, and lose some good customers."

As the stockpile becomes depleted by domestic installations, he can add more, still on a lease basis.

"So far, it's been a good deal," says Knudson. "Bank loans are hard to come by. The Small Business Administration has so much red tape you can go broke trying to wade through it. Leasing is a good answer, at least for now."

Knudson still looks forward to the day when he can own his own equipment. But there's no rush. He has a lot of expanding to do in the meantime. ■



A bottle-filling plant is an important part of the new establishment. Here George Crigger mans the pump.

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of
SERVICE



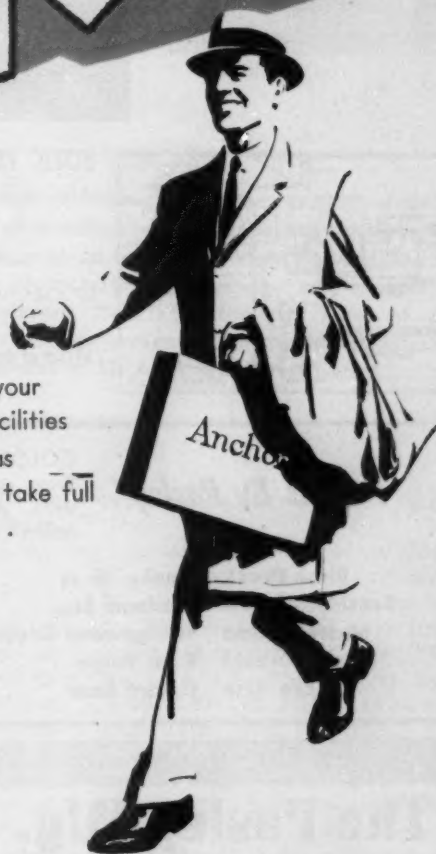
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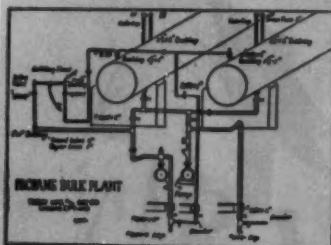


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Tomorrow's refrigerator:

Key to the all-gas home?

ELISHA GRAY II • Chairman of the Board
Whirlpool Corp.



Is the gas refrigerator on its way to making a comeback?

It is indeed—and then some—according to the chairman of the board of Whirlpool Corp., Mr. Gray, whose company rescued the Servel from moribundity not long ago, confidently expects new research to put gas refrigerators into a truly

competitive situation with the electric models.

Sales of a million units a year are possible, he told delegates to last fall's AGA Convention. In fact, he predicts the refrigerator can become a real "leverage item" to stimulate sales of all domestic gas appliances. In this abridged and updated version of his AGA talk he tells why.

THE refrigerator, as a home appliance, reached its peak of sales in 1950, in which year 6 million units were sold. This figure includes Korean War scare buying, but even so, competent authorities then were estimating that the steady, annual figure of 4 million to 4¼ million units would continue as a base, gradually rising until 1958 when it would be, in their opinion, of the order of 5 to 5½ million units annually.

As you know, exactly the opposite has happened. The sale of refrigerators has gone downhill from

a peak of 6 million units in 1950 to a point where, last year, the industry was fortunate to sell more than 2½ million units.

Why?

The reason for the shrinking volume of refrigerator sales per year is simple. I do not believe the product has brought forth sufficient technological change to attract customers as other appliances have done. Therefore, the customers' dollars have gone to the more exciting new appliances for the home.

Outstanding, of course, is television, which reached nearly 100

per cent saturation in ten years' time.

Laundry equipment, too, with all of the striking new improvements in automaticity, has taken the attention and the glamor away from refrigerators, because since 1950, we have not added similar new ideas to the refrigerator as an appliance. Further, the usable life of a refrigerator has turned out to be much longer than originally anticipated. Thus, the housewife can rock along for a long time keeping her food cold in an antiquated refrigerator. With the wisdom of

Without a modern gas refrigerator no home is truly an all-gas house. With "Interim" models, such as the one on the right, the appliance is on its way to making a strong comeback.



hindsight, it is pretty easy to see why sales of refrigerators have gone down and not up in these past eight years of a growing economy.

As a result of these things, we now find that there are more than 48 million refrigerators in use today, of which more than 18 million have been in service nine years or more. One out of two refrigerators in use today has no frozen food storage space of any kind. Thirty-three million refrigerators in operation today have manual defrosting.

As to the future trend of refrigerators, I'm convinced that we are soon to see a dramatic reversal of the past sales trends and the beginning of an upward climb. This climb, in my opinion, will bring the refrigerator volume to a base of more than 4 million units a year by 1961, and I think it will go on up to 5 million units a year by 1964.

Let me focus on the salient factors which I believe will create this turnabout. First, of course, there is the underlying thrust of a growing population, and the acceleration of home formations that should begin in 1960 and continue thereafter. Now, in the area of things about which we can do something, I believe the rate of obsolescence of refrigerators will be greatly accelerated in the immediate future. This will be brought out, in

my opinion, primarily by three technical developments which will so change the character of the refrigerator that, once again, it will be an exciting purchase for the housewife. As the result of these developments, the refrigerator will again take its place as the leader in home appliances, a place which it relinquished to other appliances about four years ago.

The first development is the automatic ice cube maker, which so far has been available only on gas refrigerators. Admittedly, it would be a great sales stimulant for that product alone if it could be kept exclusive. However, one is already on an electric refrigerator, and I am sure they will very shortly be standard equipment on the higher-priced electric units. A recent survey showed that 93 per cent of the people owning a gas refrigerator thought the most important feature on it was the automatic ice cube maker.

The second development that is coming fast is that of thin-wall insulation. There are several new developments which suggest that in the immediate future we will probably be able to use 1¼-in. or 1½-in. insulation in the walls of a refrigerator. This will give the designers all kinds of ways to create exciting new concepts of refrigerator configuration to make them attractive to the housewife.

To give you an idea of how big a step this is: a standard 11½ ft refrigerator becomes a 15½ ft refrigerator when it uses 1¼-in. insulation.

The third development will be frost-free refrigeration, where all the frost is confined to areas outside of the refrigerator. Therefore, the matter of defrosting is eliminated entirely from the customer's mind.

With these developments and with sales of the general order I previously have estimated, refrigerators will again, in fact, be the keystone of home appliance merchandising.

Now, for a moment, let us thread the gas refrigerator's experience into this panorama. In 1948 almost 400,000 units of the gas refrigerator were sold. This figure represented 8 per cent of the market. But the percentage has dwindled steadily, as you know, until last year it almost disappeared. Therefore, of the substantial drop which occurred in total refrigerator sales, at least 400,000 units are accounted for by the demise of the gas refrigerator.

We have undertaken to reverse that situation and restore gas refrigeration to greater heights than ever. During the past months while we have been energetically pursuing this goal, I have had occasion to ask many gas people what they thought a proper expectation of the long-range sales picture might be. As you would expect, the replies varied greatly. Therefore, taking all these various estimates into consideration, I shall venture a target figure of my own. Future developments will prove whether this projection is sound.

To make an estimate of the sales levels which can be reached with a gas refrigerator, one first must ask how good a refrigerator it's going to be. Therefore (and this is an over-simplification) let's say that this guess of mine assumes a gas refrigerator which is competitive in first cost, and competitive in its general performance with an electric refrigerator. Such a refrigerator is being developed right now. It is not yet an accomplished fact, but there is a bright gleam in the engineer's eye as he checks its progress. So, to simplify the fore-

Important Announcement

NEW ASME CODE ALLOWS BIG PAYLOAD INCREASE FOR T-1 TRANSPORTS!

**TRINITY STEEL IS FIRST WITH NEW CODE TRANSPORTS
... AT THE SAME LOW WG CAPACITY COST!**



This Trinity T-1 transport under the old code had a maximum capacity of 8,920 net gallons. Now, it can be built with a capacity of 9,220 net gallons by Trinity Steel.

Trinity Steel Co. is now fabricating T-1 transports under the new code... *the first company to do so*, another first in a long line of firsts. Getting into production so rapidly took full coordination of the purchasing, production and engineering departments of Trinity.

It was done for one reason: to help you increase your profits...

to give you a payload bonanza... with the finest precision-engineered transport ever built!

Today... write, wire or call collect about *your* New Code Trinity T-1 Transport. Join the happy list of customers who have made Trinity Steel Co. the world's largest fabricator of T-1 transports.

The new ASME Code authorizes LPG Tank fabricators for the first time to produce 100% Joint Efficiency tanks, fully X-rayed out of 115,000 high-tensile T-1 steel.

What does this mean to you? It means that you can increase your payload significantly without increasing total overall weight. It means greater profit for you—more efficient operation.

For example, a Trinity T-1 transport with a capacity of 8,920 net gallons under the old code now can be increased to 9,220 net gallons... at the same low WG capacity cost! You get 300 net gallons *more* payload.



TRINITY STEEL CO., INC.

4001 IRVING BLVD./DALLAS, TEXAS, U.S.A./PHONE Fleetwood 7-3961

Latin American Division: Tanques de Acero Trinity, S. A. Calle Poniente 150 No. 734, Mexico, 16, D. F., Plant and Sales Office.



cast and provide a basic assumption on which to build, I shall assume a gas refrigerator competitive in all respects with electric boxes.

It is my considered opinion that with a household gas refrigerator such as I have described, the total domestic gas refrigerator market should be one in four. In other words, I believe that 25 per cent of the annual sales of refrigerators will be gas refrigerators. You won't need your Univac to see that, given a competitive gas refrigerator, more than a million units a year should be sold when the product and the market are developed.

It is my guess that it will take five years to accomplish this condition. If such a forecast should be borne out, it is, of course, perfectly obvious to you that the merchandising of refrigerators would be a profitable and essential activity for all gas companies to pursue. When you talk in terms like these, the annual load building increment will be in the neighborhood of \$25 million dollars per year, and, of course, it is cumulative.

Now just what is the chance of getting such a competitive gas refrigerator? Here I can make no promises or predictions. I would prefer to report to you the facts as I know them and let you draw your own conclusions. In the case of Whirlpool, we have undertaken to re-create the gas refrigerator on a three-phase basis. Phase One, you will recall, was to reactivate the manufacture of the gas system used by Servel, and make what face-lifting improvements could be made to the cabinet itself. This we have done. I am very happy to report to you that we are manufacturing at a rate which meets the current market demand.

Phase Two of our program was to put the gas absorption system in the modern, square-look box, in order to gain the economies which could be had by using the same box and assembly facilities as the electrical unit. But our research has progressed at such a pace that we have been able to skip Phase Two.

Phase Three is the "Big Prize"—a truly competitive gas refrigerator.

We now expect to have this model ready by January, 1960. It will

have an improved but greatly simplified mechanism, will weigh 90 lb. less than present models, yet will gain 18 per cent in useable refrigeration space. Other good companies are also putting their efforts into developing a smart, salable box. We should all be confident that out of a total effort, a successful gas box will emerge.

The point I wish to make with you is this: While the manufacturers are making their investment in an attempt to create this product which the market can use, you must make your investment to keep the market open—to keep the market alert and eager for the emergence of this and other improved products which are on the horizon.

The refrigerator has been called the keystone product of the kitchen. It earned this position, probably, because it has priority in terms of its necessity in a home. Most knowledgeable merchandisers feel that when they sell a refrigerator utilizing gas, the rest of the appliances will almost automatically use gas as their energy source.

To be conservative, I think we can say that if a customer buys a gas refrigerator, the chances of her selecting other gas appliances are enormously improved. This would be especially true with a glamorous, modern new line of gas appliances.

The refrigerator is what I call a leverage item. Its value or its real profitability must be measured not only by its own individual contribution to load, but also by the leverage it supplies for the sale of the other gas appliances. This leverage is especially effective in selling to the new home and kitchen remodeling markets. People who contract for new homes, builders who build new homes for sale, and existing homeowners who contract for kitchen remodeling like to specify and install either an all-electric kitchen or an all-gas kitchen. There are obvious reasons why anyone would want to install all appliances in either one fuel or the other—and there is a very distinguishable trend in this direction. For these and other reasons, I predict that the gas refrigerator will emerge as the key to a more profitable gas appliance business. ■

Denver demand boosts pipeline flow by 500%

TREMENDOUS increase in the use of butane and propane in the Denver (Colo.) area due to population and commercial growth has brought a 500 per cent increase in the amount of liquefied petroleum gas flowing into the city through the major pipeline from Borger, Texas.


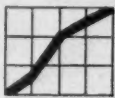




Daily capacity of the pipeline of 630,000 gal. now is being utilized to the fullest by commercial distributors who deliver it to fringe area homes and farms where natural gas does not extend.

All but 30 per cent of the supply is coming into Denver at the jointly operated terminal of Phillips Petroleum Co. and Shamrock Oil Co., at 3601 E. 56th Ave.

The present supply from the pipeline is distributed by truck transport which fans out in short hauls to cover consumers within a 100-mile radius of Denver. About 30 per cent of the fuel is taken out of the pipeline at LaJunta, the only other station on the line.

Richard Muellerleile, manager of sales for Cities Service Oil Co., reports that his firm recently completed a study on pipeline facilities in the area. The one from Borger to Denver, built in 1952, is one of the seven major pipelines serving the liquefied petroleum gas industry.

John Glahn, division manager for Phillips, said the demand for butane and propane in this area has sparked considerable local production of the fuels from Colorado oil fields like Rangely, Fort Morgan and the Julesburg Basin. ■

Again in 1958 **MORE** Dealers sold **MORE** Warm Morning Gas Heaters! These beautiful,  feature-packed gas heaters again led the industry in sales gains  with a **34%** increase over 1957. New  **Top-O-Matic** Controls will rocket  Warm Morning Sales to a new high in **1959**. Easier sales, bigger profits  can be yours with  fastest selling gas heaters!

Warm Morning Offers You:

- Big Early Booking and Anticipation Discounts!
- Liberal Fall Dating Plan!
- Powerful Advertising and Promotional Support!



Warm Morning GAS HEATERS

Send postcard today for full color catalog, prices and information about co-op advertising, broad-side mailing program, and other powerful advertising support backing WARM MORNING gas heater dealers.

LOCKE STOVE COMPANY

114 F. West 11th Street

Kansas City 5, Missouri

MANUFACTURER OF WARM MORNING HEATERS
AND INCINERATORS AND MOORE'S GAS HEATERS

news



Norco reveals expansion reorganization program

Norman H. Lee, president of Norco Inc., Los Angeles, has announced details of a comprehensive reorganization and expansion program which goes into effect immediately.

A new eastern manufacturing division located at Stroudsburg, Pa., is a completely integrated manufacturing unit incorporating total line production under one roof. Current production is of gas refrigerators, which are fully approved by the AGA.

Mr. Lee indicated an amazing growth in the company's sales volume of more than 1,000 per cent during the past four years. Projected 1959 volume is expected to be at least 250 per cent up on 1958. This has required the setting up of a number of divisions to give the best possible service to every market that Norco will serve.

These divisions are: trailer division, gas utility division, L. P. gas division, and appliance distributors and dealers. A number of personnel appointments have been made in each of these divisions, as follows:

Trailer division, middle west region, Andrew Brough, manager, and Richard G. Birlich, J. E. Grady, Howard F. Meyers, Edward E. Samuelson and Alan B. Wilson.

Gas utility division, eastern region, Ralph Leon, technical representative based at Newark, N. J.

Trailer division, western region, Floyd Von Der Scher, chief of national technical operations. Western sales to the refrigerator field are in charge of Tony Trifiletti.

A new unit re-charge station has been established at the Los Angeles headquarters with Laverne Youngblood as manager. A new cabinet repair department has been set up with Jack Kreutzer in charge. Roy Pruden continues in charge of shipping and receiving operations.

Warehouse stocks will be maintained at Stroudsburg, Pa., Elk-

hart, Ind., Chicago and Los Angeles.

A new integrated advertising and sales promotion program has been established under Gerald Novor, new advertising director, and the Rivkin Co. for publicity. Full color literature, mailing pieces, and special dealer display stands are now available.

During 1959, Norco plans to hold at least one major service school every two months with many small group meetings to be held in conjunction with the major gas utilities on a national basis.

Norco plans to do constant research for new ideas in refrigeration and water heating so as to warrant the continued confidence of the more than 300 trailer manufacturers and 20 major gas utilities that it now serves, and the new accounts projected plans will embrace.

(The company announced also its 1959 new look, convertible refrigerators. See the New Products section in this issue.)

"Gold Star Year" launched at Chicago marts

More gas range manufacturers, offering more new product developments than in any previous year, marked the launching of "Gold Star Year" at the Chicago marts recently, observers reported.

Every manufacturer will produce a completely "matchless" range—meaning automatic ignition for oven and broiler as well as top burners—said John P. Wright, president of Geo. D. Roper Corp. and chairman of GAMA's domestic range division.

Members of GAMA's gas range division whose wares are on display at the mart include Brown Stove Works Inc., Cleveland, Tenn.; Caloric Appliance Corp., Jenkintown, Pa.; Cribben & Sexton Co., Chicago; Crown Stove Works Inc.,

Chicago; Dixie Products Inc., Cleveland, Tenn.; Hardwick Stove Co., Cleveland, Tenn.; Magic Chef Inc., division of Dixie Products Inc.; Norge Sales Corp., subsidiary of Borg-Warner Corp., Chicago; O'Keefe & Merritt Co., Los Angeles; Geo. D. Roper Corp., Kankakee, Ill.; Wedgewood-Holly Appliance Co., subsidiary of Rheem Manufacturing Co., Culver City, Calif.; and Welbilt Corp., New York.

Others include the Sunray Stove Co., Delaware, Ohio; the Athens Stove Works Inc., Athens, Tenn.; the Tappan Co., Mansfield, Ohio, and Whirlpool Corp., St. Joseph, Mich.

Permaglas offers 10-year unconditional guarantee

For plumber-dealers who have tried to explain the fine print on warranties to irate home owners with malfunctioning water heaters, the new guarantee policy of the Permaglas division of A. O. Smith Corp., Kankakee, Ill., just announced, should prove a boon.

Simply stated, the new policy is this:

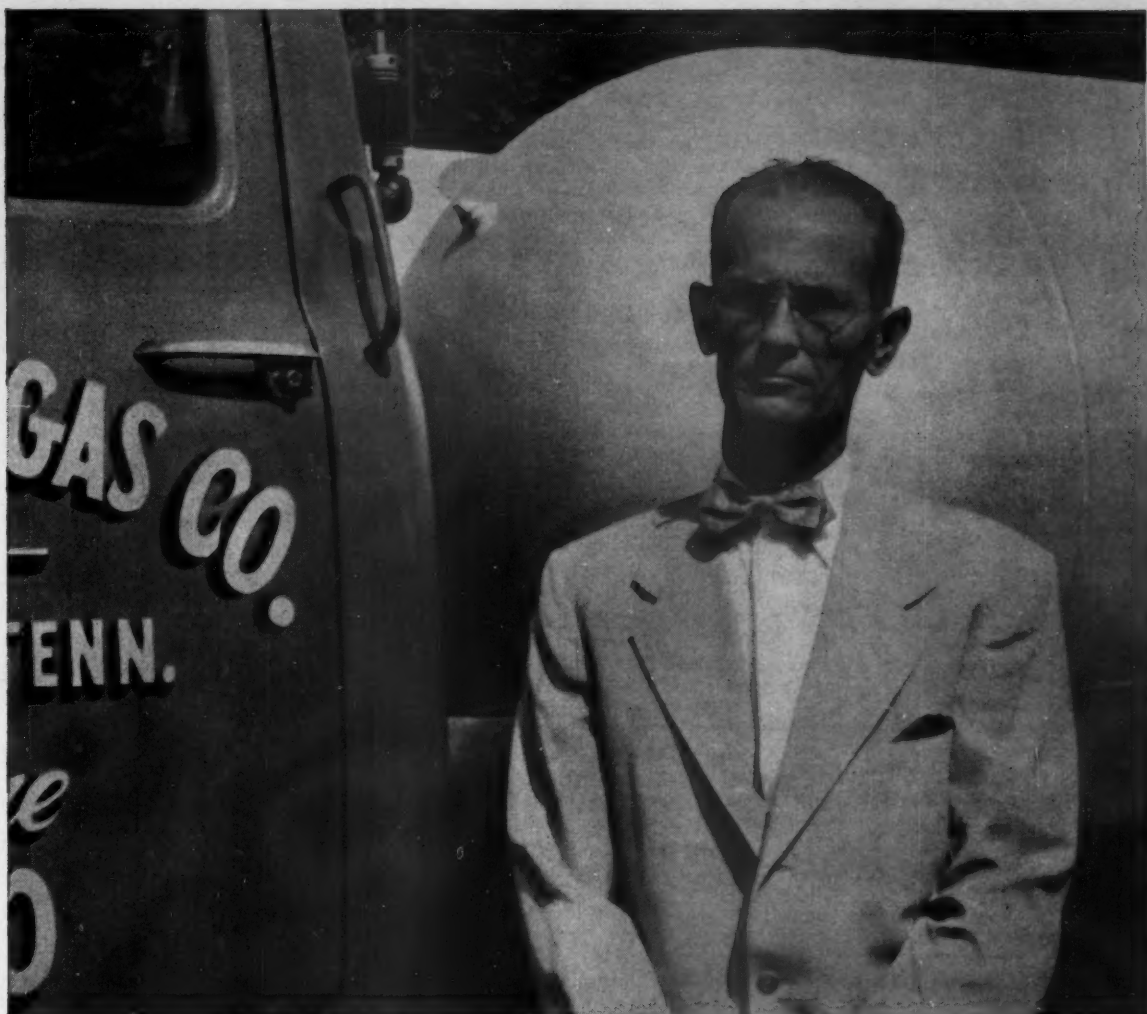
A full 10-year straight guarantee on top models of the division's domestic water heater lines.

The guarantee is complete and unconditional over the 10-year period. The move represents a 33 per cent extension of protection for the home owner, with 2½ more years of full coverage being added to the former 7½-year unconditional guarantee. This means that tank failure of a Permaglas heater during any of the 10 years following purchase will result in replacement with a new heater to the home owner.

Mid-Hudson Bottle Gas changes its ownership

Harry V. Smith, LPGA national state director from New York State, and Joseph A. Gusmano purchased the entire holdings of the majority stockholders of Mid-Hudson Bottled Gas Inc., Poughkeepsie, N. Y. Previous to that time, both men had been minority stockholders and had been active in management for many years, Mr. Smith as president, and Mr. Gusmano as secretary-treasurer.

At the present time, Mid-Hudson services approximately 4000 retail accounts and operates its own bulk



"DEPENDABLE SUPPLY IS IMPORTANT TO US, AND WE'RE ASSURED OF IT WITH TEXACO"

"Your co-operation during one of our most severe winters was the kind every LP-Gas dealer dreams about," writes L. A. Varnadow, president of the Hydratane Gas Co., Athens, Tenn.

"Under very adverse conditions, Texaco LP-Gas always rolled up on time. Our customers know they need never be concerned as long as we are associated with Texaco.

"The quality of the product is excellent, too—it is moisture-free.

"Texaco is always interested in the small operator, and goes out of its way to help him."

5 reasons why it pays to be a Texaco LP-Gas Distributor

1. A product of highest quality—moisture-free.
2. Dependable and efficient delivery, in a new fleet of tank cars, from 25 strategically located production areas.
3. Immediate acceptance. Texaco

LP-Gas is sold under the nationally famous trade-mark, the Texaco red Star with the green "T."

4. One of the largest producers of LP-Gas, The Texas Company is the only petroleum company to build up successful distribution of its products nation-wide.

5. Profitable and proved sales policies. Texaco does not compete with its independent distributors of LP-Gas.



Team your name with Texaco and profit. Let us tell you about the opportunities for a sound and profitable business with Texaco LP-Gas. Call or write today . . . The Texas Company, LPG Sales Division, P.O. Box 2420, Philtower Bldg., Tulsa, Okla., DIamond 3-4101; 3350 Wilshire Blvd., Los Angeles 5, Cal., DUmkirk 5-0515.



plant of 30,000 gal. capacity. Two years ago, a large office building and showroom was completed at the bulk plant location, which now serves as the center of all operations.

The present management plans to continue the operation without basic change, specializing, as in the past, in a metered service utilizing both bulk and cylinder type delivery.

National Propane Corp names two directors

Robert O. Anderson, president of Malco Refineries Inc., Roswell, N. M., and Benjamin S. Parks, Los Angeles attorney, were recently elected directors of National Pro-



R. O. Anderson



B. S. Parks

pane Corp., bringing the board up to nine members.

Mr. Anderson is a former president of both Wilshire Oil Co.,

Calif., and Fred M. Manning Inc., Denver. He is president of the Aspen (Colo.) Institute for Humanistic Studies, a member of the National Petroleum Council, a director of the Independent Refiners Association, and the director of the Marketing division of the American Petroleum Institute.

Mr. Parks has extensive experience in gas and oil utilities.

National Cylinder Gas announces six promotions

Six field promotions are announced by the National Cylinder Gas division of Chemetron Corp.

C. D. McGuinn, division vice president, said Russell C. Rothweiler has been transferred from the firm's branch office in Grand Rapids, Mich., to manage its district office in Kansas City, Kans. He replaces Kenneth G. Dieker, who has received an assignment with C. A. Gases Industriales de Venezuela, the NCG division subsidiary in Caracas, Venezuela.

R. C. Weiss, former branch manager in Billings, Mont., is the new manager of the Grand Rapids office and C. E. Bodin, formerly in the company's St. Paul, Minn., office has been appointed acting branch manager at Billings.

Also announced is the promotion

of Paul R. Greiling to assistant manager in the company's Chicago sales district. His previous position as sales assistant for the midwest region will be filled by Donald J. Thor, who was formerly a member of the company's Chicago district sales staff. Both Mr. Greiling and Mr. Thor will continue to make their headquarters in Chicago.

Supply company to operate on "store-door" delivery

The owners of Pat & Chuck Supply Co., P. O. Box 15333, Fort Worth, Texas, have made plans to service dealers on a "store-door" delivery basis a number of the smaller items in an area including Texas and surrounding states for major manufacturers of LPG and NH₃ equipment.

Pat Patterson and Chuck Brannon plan to render services which will include dealer selling aids, bulk plant fabrication, and marketing of used equipment.

NEWS NOTES

"Nine Tips On Enjoying Modern Gas Service," an educational safety pamphlet with common sense pointers for safe and efficient use of gas and gas appliances, has just been made available by the AGA under the PAR Public Information Program. It is an up-to-date version of a similar pamphlet produced in 1956. Safety information, presented by simple text and cartoons, has been approved by both the National Fire Protection Association and the National Safety Council. Copies can be obtained from the Public Information Bureau, AGA, 420 Lexington Ave., New York 17, at three cents each (less for quantities of more than 10,000 copies).

Schutte & Koerting Co., Cornwells Heights, Pa., announces the appointment of the Process Equipment & Engineering Co., 2440 Jonila Ave., Lakeland, Fla., as its representative in the state of Florida, east of the Apalachicola river. Also announced is the appointment of the Joel E. Martin & Co., 618 E. Morehead St., Charlotte 3, N. C., as its representative in North and South Carolina.

Manufacturing and administrative facilities of the Processed Chemical & Coating Corp. have been moved from Brooklyn, N. Y.,

How to sell 100 ranges in a month

Nothing sells a product as fast as live demonstrations, and Elmer Hansen, Pyrofax Gas northwestern division manager, proved it in just one month. This is how he did it.

He obtained one of the new MicroRay ranges (with Thermal Eye) and practiced cooking on it in his garage over the weekend. Then he rented a pickup truck, got a 20-lb cylinder of "Pyrofax" gas and the necessary regulating equipment and he was off.

Bright and early he'd arrive at a distributor's and park the truck in front of the showroom. Then, with the distributor watching, he began cooking hamburgers in the MicroRay broiler, and popcorn on the Thermal Eye. The results were served to passersby. If the distributor's show-

room wasn't centrally located, he took the truck and the distributor into town and held the demonstration there.

Together with his assistant, R. W. Schuh, Mr. Hansen visited several distributors each day, and every evening a dinner-meeting was held for those in the area. The local Hardwick representative attended to assist in presenting the complete MicroRay story. During the dinner, Mr. Hansen and the Hardwick man carefully explained all about MicroRay and helped distributors plan their own promotional sales program.

As a result of this 3300 mile tour, distributors placed over 100 orders for this range, and Mr. Hansen hasn't stopped pushing yet. He is now working out a new plan for MicroRay "parties" in the distributor's showroom, with several interested couples being invited to a dinner cooked by infra-red.

It's simple arithmetic... $1+1=3$
when you convert to Mississippi Tank T-1 Transports !



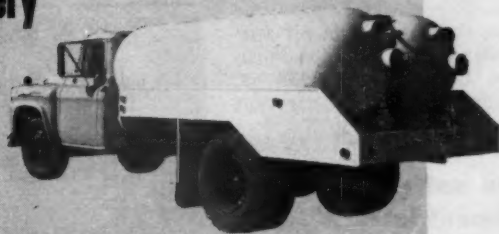
Gibbs McCormick, owner
 Propane Gas & Appliance Company
 New Brockton, Alabama

"Our operating records show that our Mississippi Tank T-1 Transport hauls as much gas on two loads as our old-type unit carries on three," says Mr. McCormick!

This 33% extra payload capacity is due to two factors: 1) the lighter weight of T-1 Steel which allows more payload and 2) exclusive Mississippi Tank design that insures perfect weight distribution and maximum loading. In addition, Mississippi Tank's advanced manufacturing techniques such as X-Ray testing of every welded seam and rigid inspection by engineers at each stage of manufacture assure years of high-profit, low-cost service. "In over 14 months of rugged operation, our Mississippi Tank Transport has required only routine maintenance," says Mr. McCormick.

"Paymaster" Twin-Delivery

Streamlined and beautiful, this unit is quality-engineered for perfect balance, maximum payloads and long, efficient service. Available with rear cabinets and full skirting in capacities from 1200 to 2300 wgs.



Let us show you how T-1 Steel equipment can pay for itself in a matter of months. Just use the coupon...



**MISSISSIPPI
 TANK COMPANY**

INCORPORATED
 Hattiesburg, Miss. Tel. JUniper 3-0262

MISSISSIPPI TANK COMPANY, INC., Hattiesburg, Miss.

☐ Show me how Mississippi Tank T-1 Transports can pay for themselves in a few months!

Also send literature on:

☐ Paymaster Twin Delivery

☐ Single Barrel Delivery

☐ Titan T-1 Delivery
 (3,075 wg cap)

☐ Domestic and Bulk
 Storage Tanks

NAME _____

COMPANY _____

ADDRESS _____

CITY and STATE _____

to much larger quarters in Rutherford, N. J., according to Fred Schoeman, sales manager. This move will make available additional manufacturing space for the L. P. Gas Cylinder Finishes division of PCCC. A separate research staff will develop improved coatings for the gas industry.

U. S. Steel's first 1959 Steelmark Newspaper Service has one page devoted to farm improvement with suggested ads for L. P. gas, farm supply dealers, fencing, and REA cooperatives. It is a special home improvement edition, produced in cooperation with the Bureau of Advertising, American Newspaper Publishers Association, to tie in with the newspaper industry's Total Selling program. The service is being mailed to advertising managers and editors of daily newspapers. In addition, it is being distributed to Metro Newspaper Service's 4000 subscribers.

Manufacturers' shipments of equipment for residential gas heating totaled 50.9 per cent more units in December 1958 than in the same month a year earlier, GAMA announced. The 76,800 gas furnaces, boilers and conversion burners shipped in the month compares with 50,900 in December 1957, according to Edward R. Martin, GAMA director of marketing and statistics. For the full year the totals, covering gas warm air furnaces, boilers and conversion burners, were 1,121,000 for 1958 vs. 972,100 for 1957, a 15.3 per cent gain.

Seek to soften garnishment law

This year, a group of Washington, D. C., merchants and attorneys is again trying to soften the local law governing garnishment. If they succeed, the new law could become a model for other cities.

At present, any debtor's entire pay is frozen until the court determines how much of his salary is exempt from attachment.

One of the proposed plans would permit a debtor to take home \$50 per week before attachments are made, and limit them to 10 per cent of his total wages. Another would provide a sliding scale based upon the debtor's monthly salary: 10 per cent of the first \$200, 20 per cent of the next \$300, and 50 per cent of any remainder.

Reprints of the article "Highway asphalt plants offer huge LPG market," which appeared in February BUTANE-PROPANE News, are now available. This was a case history of Freeto Asphalt Co., which converted from oil and thereby increased production by 25 per cent, improved product quality markedly, cut starting-up time, and reduced labor costs sharply.

Price, 25 cents per single copy, 20 cents each in lots of 50 or more. Order from BUTANE-PROPANE News, 198 South Alvarado St., Los Angeles 57.

Bill proposed to regulate maker's retail sales

Congress is considering a bill that would ban manufacturers from selling goods at retail prices below the wholesale prices retail merchants must pay for the same products.

Rep. Alvin H. Bentley (R), Mich., says the bill is designed to give the independent merchant a better break in competing with stores owned or controlled by manufacturers.



John A. Storm, left, manager of Sinclair Oil & Gas Co.'s L. P. gas sales department, Tulsa, receives the first place award for Sinclair's new Truflame L. P. gas advertising program. Making the award is Carl Smith, one of five judges in the 1958 "direct mail leaders award" contest sponsored by the Oklahoma Advertising Federation.

Controlled-heat burner important to housewives

More than 8 out of 10 delegates to McCall's Magazine's Second Annual Congress on Better Living said they would insist on a controlled-heat burner if they were to buy a new gas range. One-fourth of the women already have controlled-heat in their ranges.

Among the comments made by the 100 housewives attending:

"Most of us don't understand the various degrees of cooking. Now, the temperature degrees mean something in terms of simmering, boiling, etc. It's a new way to think about cooking and it's easier once you get used to it."

"Heat control should be regulated by temperature degrees instead of 'one,' 'two,' 'three.' Most recipes tell at what temperature to cook a food."

"It's wonderful, but sometimes I'm annoyed because I turn the burner down and it will go out because the pilot light isn't adjusted."

"I am rather forgetful, and it is wonderful when I forget something is cooking."

Forty per cent of the delegates owned gas ranges.

M. J. Anton elected to Suburban Propane Board

M. J. Anton, vice president in charge of sales for Suburban Propane Gas Corp., Whippany, N. J., was recently elected to the firm's board of directors.

Mr. Anton became vice president and assistant secretary one year ago. He worked temporarily with the company as a gas installation man in 1949, then went full time with the firm in 1951 upon graduation from college. He successively was a wholesale department representative, manager of the Suburban Marine operation, manager of the Derby, Conn., office and assistant to the administrative vice president.

17 Uregas dealers win trip to Miami, Fla.

Seventeen dealers and their wives, accompanied by personnel of Uregas Service Inc., recently enjoyed a six-day stay at the Deauville hotel, Miami, Fla., as guests of Uregas.

The dealers were winners of the 1958 Uregas Sell-Arama Holiday

PREST-O-LITE Cylinders for LP-Gas

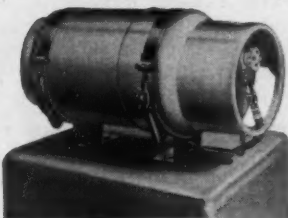
TRADE-MARK

A FULL LINE
of CYLINDERS...
with ONE Standard
of QUALITY—
the best!

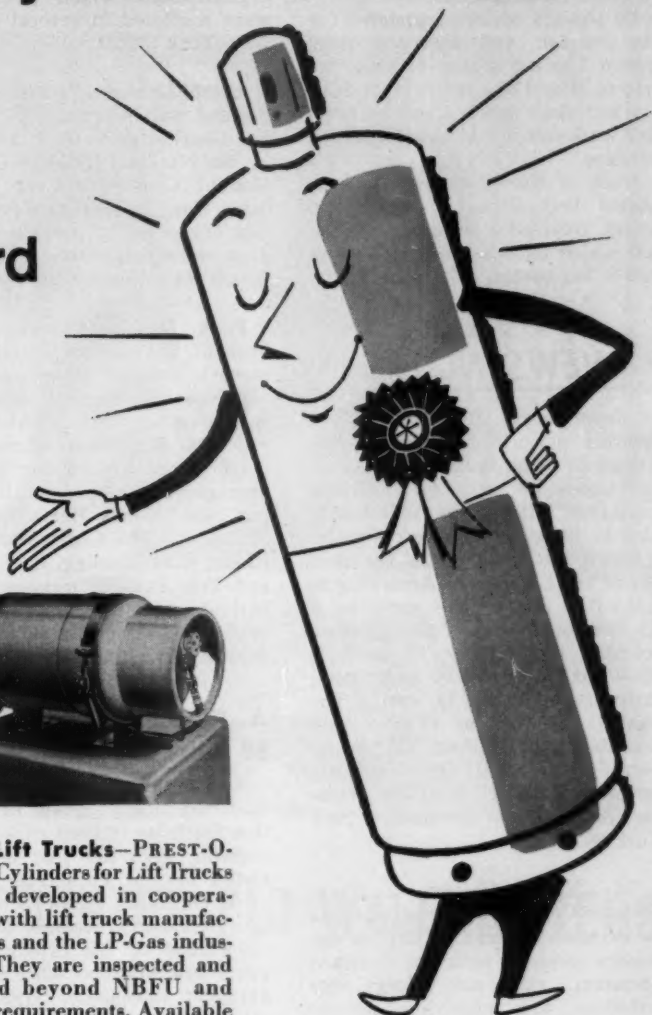


P-100-W

◀ **For Standard Service**
—Take your choice of three 100-lb. PREST-O-LITE Cylinders for Standard Service! Deluxe P-100-W has one-piece flange to accommodate markings with maximum effectiveness. The P-100-R provides a heading on which the markings are stamped. Low-priced P-100-N offers you top quality and safety features of costlier cylinders, with controlled, precision imprinting. Standard cylinders are also made in 60-, 40-, and 20-lb. sizes.



▲ **For Lift Trucks**—PREST-O-LITE Cylinders for Lift Trucks were developed in cooperation with lift truck manufacturers and the LP-Gas industry. They are inspected and tested beyond NBFU and ICC requirements. Available in 14-, 20-, 33½-, and 43½-lb. sizes.



For Universal Service—Newest type, P-100-U is up to 50 lb. lighter than ASME tanks of same capacity with no sacrifice in required strength, yet it is priced as much as one-third lower. Delivers propane as either liquid or vapor, or both at once, in vertical or horizontal position.

For Special Service—PREST-O-LITE Cylinders, rugged and durable, for special jobs. Safety and quality features of standard models. Available in 12.4-, 8.9-, 3.5- and 1.8-lb. sizes.

PREST-O-LITE Cylinders carry a low price tag— yet give you these Quality Features

LIGHTWEIGHT—Built of high-grade alloy steel

TWO-PIECE CONSTRUCTION—Cold-drawn shells and footring are joined with UNIONMELT Welding

METALLIC ALUMINUM FINISH—Electrostatically applied over zinc chromate primer, and infra-red dried

EASY HANDLING—Even weight distribution, with curled footring for added protection to bottom

ECONOMICAL—Corrosion resistance, extra strength and maximum safety features make each PREST-O-LITE Cylinder a "best buy" in its class

Linde

TRADE-MARK

UNION
CARBIDE

The terms "Linde," "Prest-O-Lite," "Unionmelt," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

Contest, which ran from July 1 through November 30.

Of the 228 dealers registered for the contest, 103 exceeded their quota. The top 17 dealers made the trip to Miami and the next 23 dealers and their wives spent a three-day week-end in Chicago at Uregas expense.

Each of the 63 dealers who exceeded their quota, but did not win a trip, received a personalized desk set, which includes two pens, clock and a barometer.

NEWS NOTES

"Supervisory Management," a monthly service designed by the American Management Association, provides help for first-line managers. It shows supervisors how to hold the line on costs, increase production, and get the most out of their workers. According to AMA the service can serve as a flexible supplement of any existing training program or, if there is no formal program, as an authoritative training aid in itself. The annual cost for one to nine subscriptions is \$7.50 each/AMA members: \$6.50 each. Quantity subscription rates are available. Write the AMA, 1515 Broadway, New York 36.

The Norge division of Borg-Warner Corp. is shipping blankets in wringer washers to provide appliance dealers with an "instant premium" sales aid. Norge distributors are supplying dealers with a merchandising package on the wringer washer blanket promotion. Included in this kit are two-color 25 x 38 in. window banners, tub stickers, self-mailing postcards, suggested dealer ads and radio scripts.

The Imperial Gas Co., Yuma, Ariz., distributor of Rockgas-Propane, formally opened its new plant office and appliance showroom recently. The company held an all-day open house, at which there were prizes, gifts and refreshments for all who visited the new location.

General Electric Communication Products department is transferring its headquarters to a modern factory facility at Lynchburg, Va. Expanded space at the Virginia location enables G-E to bring together its engineering, manufac-

turing, sales and product service organizations which previously were scattered in several cities in New York State.

Establishment of a new sales office and warehouse at 2045 Meeting St., Charleston, S. C., is announced by the National Cylinder Gas division of Chemetron Corp. At the same time, it was announced that new offices for its north central region were established at 2191 S. Green Rd., Cleveland.

F. A. Deininger, regional manager of the eastern division, was recently honored at an award dinner following Magic Chef's annual sales meeting, held in Chicago. He was cited for "the excellence of his performance in carrying out sales management responsibilities during 1958." W. J. Hempfling, R. G. Moon, C. M. Christensen, Sam Raker, E. L. Massing, B. T. Toliver, and Tom Pollard, members of the national sales force, were also honored for outstanding performances during 1958.

A. O. Smith completes \$5 million expansion

A \$5 million plus expansion and modernization program of production facilities to keep pace with increasing sales has just been completed by the Permaglas division of A. O. Smith, J. H. Brinker, Jr., vice president, revealed recently.

Included in the expansion program are \$550,000 office addition, \$115,000 warehouse, \$105,000 research and test facility, modernizations and additions to existing manufacturing plants, all in Kankakee, and acquisitions of a water softener plant in Omaha and a water heater production plant in another marketing area.

The 4800 sq ft research center will be used to test such materials as grain, forage, sugar, flour and starch.

The expansion program also marked A. O. Smith's move into the water softener business through the purchase of this segment of the Refinite Corp., Omaha, Neb.

Draketown inaugurates inspection service

Drake & Townsend Inc., New York, has announced the organization of the Draketown L. P. gas plant inspection service to specialize in a system of inspection pro-

cedures for all types of L. P. gas plants.

Recent changes in NFPA and Pamphlets 58 & 59 have set new regulations for the safe and efficient operation of L. P. gas plants designed prior to 1957. The Drake-town Inspection Service will enable plant owners to comply with insurance carrier requirements to maintain present rates.

Information on the service may be obtained from Drake & Townsend Inc., 11 W. 42nd St., New York 36, N. Y.

Bad checks plague for small business

"Bad checks are assuming the proportions of a national pestilence," FBI Director J. Edgar Hoover warns.

Emphasizing that small business is particularly preyed upon, Hoover said that a total of \$535 million of phony checks were written in 1957, the last full year for which statistics are available.

Bad check artists are given a "big assist" by careless victims, Hoover said, citing instances of a phony check signed "U.R. Stuck" and another drawn on the "East Bank of the Mississippi."

Industrial radio systems registry is available

The 1959 official Registry of Industrial Radio Systems, compiled annually from Federal Communications Commission records, is now available from Communication Engineering Book Co.

It lists systems by industry and also by frequency, showing: name and address of each licensee, location of each fixed transmitter, call letters, number of mobile units authorized, operating frequencies, and manufacturer of equipment used.

A standard reference, since the FCC puts out no equivalent publication, the registry is priced at \$5. It may be obtained from the Communication Engineering Book Co., Monterey, Mass.

New Roper line presented at annual sales meeting

Nearly 200 salesmen, home office personnel and executives, and industry guests of the Geo. D. Roper Corp. attended a recent two-day sales meeting in Kankakee, Ill. At the meeting the complete 1959

Helps my reputation for quality heating work



suburban COUNTER-FLO WALL HEATERS

It heats better—Is more compact and better looking

When a heating job is complete the best advertising I can get is the complete satisfaction of the owners. This Suburban Counter-Flo has a fan that forces air downward and heats floors first . . . continuous air circulation heats all corners of a room. In addition, this is the most compact, best looking wall heater I've seen. It's available in either single or dual-wall models up to 50,000 BTU. As a clincher, *the heat-exchanger is guaranteed for 20 years*, and Suburban is approved by the American Gas Association! Mighty attractive price, too. It will pay you to get the details. It did me.

***For a Low Cost Gravity Wall Heater
You Can't Beat Suburban Either!***

Suburban's Gas-Fired Gravity Wall Heater has more value at a lower price than any other wall heater. Easier to install too, for no header plate is needed. Just check the coupon for all the low-price details.

Floor Furnaces. The same high quality and low price is available in Samco Floor Furnaces. If you ever use a floor furnace, get the information on Samco.

suburban
Counter-Flo Wall Heaters

by the makers of famous Suburban Built-in Ranges

Samuel Stamping & Enameling Co., Dept. BPN-49, Chattanooga, Tenn.
Rush complete details on: Counter-Flo Forced Air Wall Heaters ☐
Gravity Wall Heaters ☐ Floor Furnaces ☐

Name _____

Company _____

Address _____

City _____

State _____

The Gold Star of Quality occupied a prominent spot at the recent annual sales conference of the Geo. D. Roper Corp. Shown with the Seal are (from left) Harold Jeske, N. C. Kreuter, W. J. Foster, E. Carl Sorby and John P. Wright.



Roper gas appliance line made its debut.

Roper Vice President E. Carl Sorby officiated at the unveiling of the new models. Featured speakers included John P. Wright, Roper president; Harold Jeske, executive vice president; and N. C. Kreuter, L. R. Jensen, and Mr. Sorby, vice presidents.

Century produces film on LPG as motor fuel

Production of the first complete educational film strip with sound on the story of L. P. gas as a motor fuel is announced by Century Gas Equipment of the Marvel-Schebler Products division, Borg-Warner Corp.

The full-color film strip gives a detailed account of L. P. gas—its origin, ground-to-consumer processing-production and distribution (marketing), scientific and statistical comparison with other commercial motor fuels (such as diesel and regular grade gasoline), rapid growth and expansion, uses, proper conversion techniques, specialized carburetion equipment requirements, as well as discusses maintenance savings pertinent to fleet owners, lift operators and farmers.

Accompanying the film strip is a summary booklet entitled, "The Fuel System Story of the Century—by Century L. P."

Overseas service for equipment manufacturers

Overseas management services for U.S. manufacturers of gas equipment will be provided by newly-formed International Gas Equipment Co. The announcement was made by President Charles Kelsey at the firm's headquarters in Cleveland.

International Gas Equipment

will supervise export sales and service for a limited number of non-competitive manufacturers of industrial gas equipment. Technical advice and assistance will be furnished to cooperating manufacturers in arrangements for manufacturing or assembly of their products overseas, either on a licensing or joint-venture basis.

A San Juan, Puerto Rico, office has been established to handle Latin American sales and a European office will be opened shortly.

L. P. gas stars at National Motor Boat Show

L. P. gas starred at the 1959 National Motor Boat Show at the New York Coliseum as groups of marine mechanics, dealers, boatyard and marine operators witnessed an installation and operations session of L. P. gas conducted by Suburban Marine Gas Service, a division of Suburban Propane Gas Corp., Whippany, N. J. Suburban held one of these sessions each morning of the show.

At each session, every phase of L. P. gas use afloat was covered, including size and location of cylinders aboard the craft; installation of the gas system in accordance with Marine Safety Standards and with Section No. 42, Pamphlet No. 302, published by the National Fire Protection Association; and proper operation and testing procedures for L. P. gas equipment and appliances.

Cribben & Sexton control acquired by Waste King

Waste King Corp., Los Angeles, recently announced that it has acquired a controlling interest in Cribben & Sexton Co., Chicago.

The West Coast appliance manufacturer has obtained 156,552½

shares of Cribben & Sexton's common stock as a result of an offer to that company's shareholders, according to Bertram Given, Waste King's president. This gives Waste King 67 per cent of Cribben & Sexton's voting shares, he said.

Mr. Given stated that Waste King plans to operate Cribben & Sexton as an autonomous company, headed by Wendell C. Davis, its current president, who will retain that title, and with no changes in the Chicago firm's staff.

Neptune Meter reassigns sales districts

Increased sales in the Middle Atlantic states necessitated a complete revision of Neptune Meter Co. sales territories, according to G. W. Moore, recently-appointed branch manager of the firm's Philadelphia office.

In addition, the office itself was moved from 1420 S. Penn Sq. to new and larger quarters at 7 Bala Ave., Bala-Cynwyd, Pa. The sales territory covered by the changes includes Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and District of Columbia.

Scaife takes over Kellogg compressors

Scaife Co. of Oakmont, Pa., has formally taken possession of the air compressor line of the Kellogg division of American Brake Shoe Co. (Rochester, N.Y.) according to Maurice Parker, president and chairman of the board of Scaife. The transfer of Wilson Brothers (parent firm of Scaife) stock and cash was accomplished simultaneously.

The new division will be operated as the Kellogg-American division of Scaife.

Package lease plan for gas industry

A special package lease plan for the gas industry was announced in mid-February by Nationwide Leasing Co. of Chicago. Under the plan, any combination of equipment may be considered one package and leased as a unit for three to five years.

"This plan was developed to meet the need of firms in the gas industry to expand and modernize facilities without depleting their working capital," Nationwide Pres-

They laughed at the first tank...



nothing will replace the bottle



...but how wrong can you be...

THE MODERN MASTER PROPANE TANK

Manufactured by THE OLDEST PROPANE TANK MANUFACTURING PLANT IN THE WORLD



Back in the 30's they laughed at "those daffy looking tanks." That was when the first Master domestic tanks made their appearance. From the start they were a success, despite the men who thought bottle delivery was the only way. The domestic tank started a new, practical, economical way to deliver gas that built volume . . . simplified dispensing. Master Tank & Welding, believed to be the oldest manufacturer, who is still in business, of domestic propane tanks in the world, will continue to produce THE FINEST TANK MONEY CAN BUY.

SOLD from QUINCY, ILLINOIS or DALLAS, TEXAS



MASTERPIECES OF
STEEL FABRICATION



2000 S. Front St. • Quincy, Illinois • Baldwin 3-3014
P. O. Box 5146 • Dallas, Texas • Riverside 7-2441

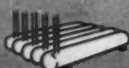
Order your storage and transports from the Master plant nearest you. Shipments made by truck, railroad or low cost river barge.



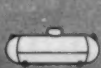
TRANSPORTS



TANK TRUCKS



STORAGE



DOMESTIC



FILLING STATIONS



FARM CARTS



REFINERY



LINE PIPE

ident Robert Sheridan explained. "Any combination of equipment may be lumped together in one package, under one lease with one monthly payment."

A chart on the plan is available from Nationwide Leasing Co., 11 S. LaSalle St., Chicago 3.

Suburban's J. N. Good dies after brief illness

Joseph N. Good, regional manager of Suburban Propane Gas Corp.'s North Jersey and Central

New York districts, died January 2, after a brief illness.

Mr. Good, who had a record of more than 27 years in the L. P. gas industry, started with Phillips Petroleum Co. at Hudson, Ohio, as an operations supervisor.

Suburban Appliance buys cylinder cabinet firm

The recent purchase of the B&M Metal Cabinet Corp., Cedar Grove, N. J., manufacturers of L. P. gas cylinder installation cabinets, by

the Suburban Appliance Co., is announced.

In making the announcement, A. H. Cote, president, revealed that all manufacturing operations have been transferred to the Suburban Appliance factory in Dayton, Tenn., and that sales and management headquarters will be at the company's general offices in Whippany, N. J.

Canadian firm acquires another propane business

Superior Propane Ltd., Toronto, has acquired the propane business of H. May Ltd., St. Therese, Quebec.

In announcing this acquisition, Allan A. Rowan-Legg, president of Superior, stated that it included all the propane storage equipment, tanks, and regulating equipment previously owned and operated by H. May.

Sel-Pac launches LPG training course

Selwyn-Pacific Co. has launched "Flo Curves and Her Little Puzzlers," an unusual training program, for L. P. gas people in the U. S. and Canada.

Flo is the sometimes-right, sometimes-wrong "star" of Sel-Pac's 12-page, 4 x 8½ in., cartoon training booklets, mailed free every month to L. P. gas dealers.

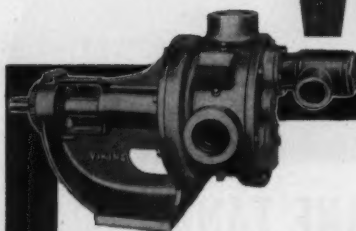
Dealers, in turn, will distribute the booklet to their own employees for unpuzzling, thus making it possible for these same employees to compete for 51 prizes, one of which is an all-expense-paid 10-day vacation tour via TWA. Winners may choose California or Nassau.

NEWS NOTES

Watts Regulator Co., Lawrence, Mass., announces the appointment of George Gilfeather as its district sales representative for northern California and Nevada. He will maintain an office and warehouse at 1335 Folsom St., San Francisco.

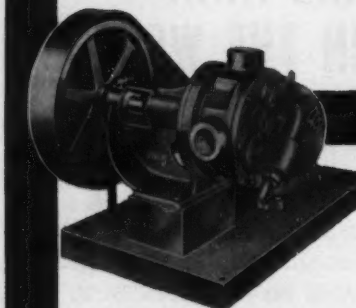
A 16-page, 2-color booklet entitled "Everyday Human Relations" has been published by Enterprise Publications. One of the biggest problems in life is getting along with other people. Knowing certain basic ground rules or skills makes it easier. The booklet is

PUMP LP-GAS AT LOWER COST WITH VIKINGS



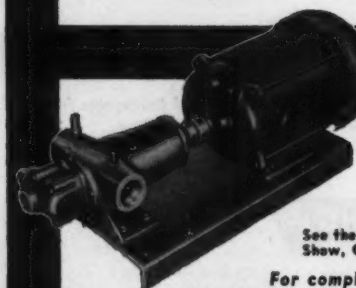
Truck Delivery

Specially constructed to handle LP-Gas, Viking Truck-mounted pumps reduce the cost of loading and unloading. Equipped with return-to-tank valves and installed with full-size equipment, they give fast, positive delivery. Choice of 28, 38 and 70 GPM sizes.



Bulk Plant Operation

A complete and improved line of Viking Pumps to handle all types of bulk plant pumping. You'll find that Viking supplies the right pump for your job — no need to accept improper size equipment.



Fueling, Bottle Filling

Viking Pumps made especially for fueling and bottle filling are direct connected for fast delivery. Choice of 5, 10, 20 and 30 GPM sizes for all needs.

See the Viking Pump display, Booth 157, LP-Gas Show, Conrad Hilton Hotel, Chicago, May 3-6.

For complete information, write for Catalog HB and SP479B

For your safety — all pumps carry this Underwriters marker



VIKING PUMP COMPANY

Cedar Falls, Iowa, U.S.A. In Canada, it's "ROTO-KING" pumps

SEE OUR FILE IN BUTANE-PROPANE CATALOG

ideal for employee distribution. Price is 15 cents per copy. Minimum order 25 copies. Quantity prices on request. Write Enterprise Publication, 11 N. Wacker Dr., Chicago 6.

Directors of Signal Oil & Gas Co. and Bankline Oil Co. have unanimously voted to merge the two firms on the basis of one share of Signal for 5½ shares of Bankline. Signal is to be the surviving corporation after stockholders of both companies have ratified the merger.

Two New West Coast sales and service branch offices were recently opened by White-Rodgers Co. The new offices assume the duties formerly handled by Pacific Scientific Co. For California, Nevada, Arizona and Hawaii, district headquarters will be 201 Glendale Blvd., Los Angeles 26. District headquarters for the Northwest area are located at 2846-52 N. E. Glisan St., Portland 12. The office will serve Oregon, Washington, Idaho, western Montana and Alaska. In addition to the new offices, resident engineers will be located at San Francisco and Seattle.

The Uregas Companies recently concluded an agreement with the Caloric Appliance Corp. to represent Caloric on its free-standing gas ranges, exclusively in its entire territory. Also, Uregas will distribute Caloric built-in ranges on a non-exclusive basis. The Uregas Companies, which operate in 90 counties in the eastern two-thirds of Missouri and the western quarter of Illinois, will warehouse the ranges at each of its principal warehouses, these being Quincy, Ill. and Moberly, Rolla and Cape Girardeau, Mo.

Executives and sales supervisors of H. C. Little Burner Co. Inc. gathered for an annual sales meeting in LaPorte, Ind. recently. Under the direction of John V. Youngblood, general sales manager, representatives were briefed on new product developments and merchandising programs for the manufacturer's complete line. Operation Snowball, the 1959 merchandising program, includes an expanded consumer and trade advertising schedule, additional point-of-purchase displays and product literature. Information on Operation Snowball is available on request from the company's sales department, San Rafael, Calif.



**A
FULL
LINE
SPELLS
SUCCESS**

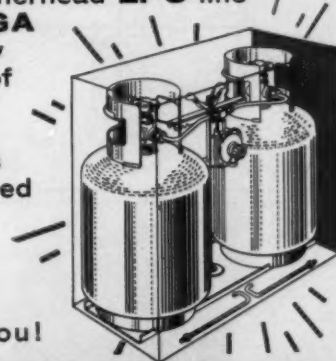


WEATHERHEAD **Highest Quality Cylinders** **to Satisfy Your Customers**

Yes, a complete line of quality cylinders and equipment will help you gain a precious commodity — customer satisfaction! And it's through customer satisfaction that the progressive LPG dealer builds a successful business. With fast, efficient service through one-source purchasing efficiency on a full line of quality products, Weatherhead opens your way to Leadership, Profit and Growth. Check Weatherhead for LPG today!

See the full Weatherhead LPG line
at the annual LPGA
convention in May
see the new line of
Trailer Packages
and Regulators
Fittings and Tools
Everything you need
for LPG...

Leadership
LP-Gas **Profit**
Growth
for You!



WARRANTY
PROTECTION ON
ALL WEATHERHEAD
LP-GAS PRODUCTS



THE WEATHERHEAD COMPANY
LP-Gas Equipment Division
Cleveland 8, Ohio

SINCE 1919 *40 Years of Manufacturing Experience*

Plans get underway for Kentucky's convention

The dates of August 2-4, with the Kentucky Hotel, Louisville, as the location for its annual convention were confirmed by the Kentucky LPGA at a recent committee meeting.

Miss Sherry Von Thompson, daughter of Mr. and Mrs. Paul Thompson, will reign as "Miss Kentucky L. P. Gas—1959."

Stress will be placed on the annual trade show; new members, who have joined this year; and on industry problems in the convention program.

Mueller elected president of Michigan group

Russell Mueller, Protane Corp., Durand, Mich., was elected president of the Michigan LPGA at its 12th annual convention and trade show. The convention was held January 19-20 at the Pantlind hotel in Grand Rapids.

Other new officers are: Charles Gunther, Fuelgas Co., Bay City, vice president; and J. O. Gower, Michigan Bottled Gas Co., Eureka, re-elected secretary-treasurer.

Donnell H. Fox, Robertshaw-Fulton Controls Co., held sessions for servicemen on servicing of controls, and the "Flame-Set Burner With a Brain."

Robert Okster of Minneapolis-Honeywell conducted a service session on the M-H Service Workbook.

Michigan's state fire marshal, Captain Walker, talked to the conventioners at the Monday luncheon about the value of understanding that must exist between regulatory officials and industry in order to promote a climate favorable for the continued growth of the LPG industry.

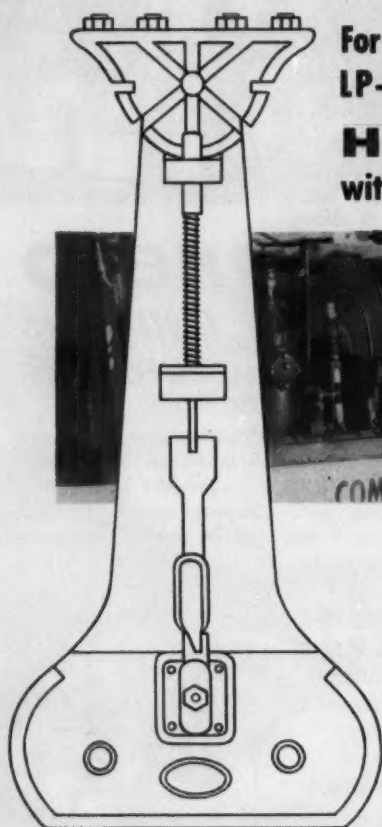
Following somewhat the same trend, J. A. Gillespie, Socony Mobil Co., emphasized the importance of ethics and moral responsibilities and Charles Corken, Corken Manufacturing Co., said that ethics in the industry, the responsibility of all educational programs, and the relationship between the L. P. gas industry and other organizations, is dependent wholly upon the willingness of every individual businessman to see such projects supported.

Of particular interest to the 160 L. P. gasmen attending the convention was the topic, "Electric Competition," where speaker L. C. Wright put his finger on the sore spot which is "electrical heating" and suggested that a program emphasizing the advantages of L. P. gas be undertaken.

White named a member of National Petroleum group

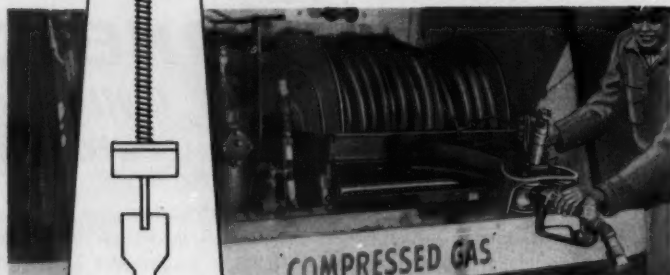
The appointment of Howard D. White to the National Petroleum Council gives the national LPGA a voice in the group of petroleum and natural gas company and trade association executives which meet periodically with officials of the Interior Department's Office of Oil & Gas.

Secretary of the Interior Fred



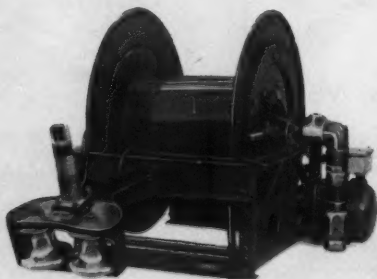
**For Faster
LP-Gas Delivery...**

**HANNAY Reels
with GUIDEMASTER**



For any pumping system . . . with any rewind power . . . Hannay hose reels with the Hannay Guidemaster will reduce delivery time, extend hose life, *cut operating costs!* Hannay reels give you fast, positive controlled rewind. Hannay Guidemaster permits left or right delivery and controlled, level rewinding with one hand operation.

See your LP-Gas Equipment Supplier for complete information, or write direct for the Hannay LP-Gas Delivery Equipment Catalog.



Hose Reels by

HANNAY

CLIFFORD B. HANNAY & SON, INC., WESTERLO, NEW YORK

NEW AMERICAN® WC-45-LPG



Designed to Provide Ideal Metered Service for Average LP-Gas Loads

The modern design and attractive appearance of the WC-45-LPG pleases customers instantly — and keeps them satisfied throughout years of dependable service. Its sturdy, light weight, welded steelcase construction includes these quality features to assure accurate measurement from pilot load to rated capacity, at lowest possible maintenance cost:

- Internal, counter-type, tamperproof index for easy meter reading.
- Removable soldered top for easy meter accessibility.
- Bellows-type, molded Duramic diaphragms for LP-Gas service.
- Long-lasting, one-piece Nylon valve guides.
- Lifetime corrosion protective finish.
- One-piece, corrosion and impact resistant plastic index box glass ends breakage problems.
- Wall mounting lugs for quick installation.
- Tangent adjustable through meter inlet without removing top.
- Synthetic grommet-type flag rod seals for minimum friction.
- Oil impregnated, porous bronze bushings.

Rated capacity 45 cfh propane and 40 cfh butane at 1/4-inch w.c. differential — 5 psi working pressure — 1/4-inch F.P.T. connections — shipping weight 8 lb. F.O.B. Philadelphia.

Ask your American representative for full details.



AMERICAN®
METER COMPANY
INCORPORATED - ESTABLISHED 1901

General Offices: Philadelphia 16, Pa.
Sales Offices in Principal Cities

presenting ...



Proudest performers of all time, Enterprise Ranges of our Centennial Line are designed and manufactured with one hundred years of scientific know-how and dependability behind them.

To celebrate our 100th anniversary, we have gone all out to build the finest ranges of all time.

Get *Enterprise* for Profit. *Free floor plan.
No down payment. *Generous advertising allowance.
Free mat books.



PHILLIPS & BUTTORFF CORPORATION

Nashville, Tennessee

100 Enterprising Years

N. Seaton named Mr. White to an ex officio membership in view of his position as staff head of the national trade association in the L. P. gas industry.

Ohio education committee plans three-day school

The educational committee of the Ohio LPGA is completing arrangements with Ohio State University in Columbus for a three-day school for installation and servicemen.

The school will be held August







Claude E. Monlux, Linde Co., a division of Union Carbide Corp., (left) was elected president of the Compressed Gas Association, Inc., at its 46th annual meeting concluded recently. Other officers elected include George C. Cusack, Pure Carbonic Co., a division of Air Reduction Co., Inc., 1st vice president; D. M. Horner, Harrisburg Steel Co., a division of Harsco Corp., 2nd vice president; and Franklin R. Fetherston who was re-elected secretary-treasurer.

the name that means
PROFITS



**FOR
YOU**

Here's how TRUFLAME is helping to get extra business and profit for Sinclair LP-Gas distributors.

-  **TRUFLAME** adds prestige and confidence.
-  **TRUFLAME** puts distributor in a better competitive position.
-  **TRUFLAME** 50/50 Advertising Plan doubles advertising impact at no extra cost.
-  **TRUFLAME** stands for high quality and dependable service.

Write or call today for information about Sinclair's progressive program that is helping distributors make more money.



**SINCLAIR
OIL & GAS COMPANY**

LIQUEFIED PETROLEUM GAS SALES DEPARTMENT
SINCLAIR OIL BUILDING — TULSA 2, OKLAHOMA
Telephone LUther 4-0411

17-19. The number of students will be limited to approximately 100. The subjects being considered include: carburetion, regulation and piping, appliance controls, furnace controls, bulk plant and tank truck operations, venting, customer relations, safety, and Pamphlet No. 58.

Questionnaires have been mailed to each OLPGA member asking him to indicate five of the above subjects he would most like covered. The course will be based on the five subjects most in demand. The course will be open to both members and non-members of the Ohio LPGA.

Pollard to open Council's second PR field office

Richard H. Pollard, San Francisco public relations man and former west coast newspaperman, has been named western regional manager of the National LP-Gas Council.



R. H. Pollard

Mr. Pollard is scheduled to open the Council's second public relations field office in the Furniture Mart in San Francisco early in April. He will work with industry leaders and jointly with L. P. gas state asso-

ciations, such as the WLGA, throughout western states to expand the National Council's "grass roots" public relations program.

Council appoints two new committee chairmen

The appointment of two new committee chairmen of the National LP-Gas Council was announced recently by W. F. DeVoe, president.

They are: A. E. Moore, president of the Dri-Gas Co., a division of Warren Petroleum Corp., who was named chairman of the Council's dealer sales aid committee; and John G. Guardioli, manager of advertising and sales promotion for



A. E. Moore
Dri-Gas



J. G. Guardioli
Protane Corp.

the Protane Corp., who was appointed chairman of the public relations committee.

Mr. DeVoe, manager of L. P. gas sales, Phillips Petroleum Corp., also disclosed that Rudy Munzer, president of Petrolane Gas Service Inc., will continue to serve as chairman of the membership committee, while Donald G. O'Meara, sales manager of Pyrofax Gas Corp., will remain as chairman of the advertising committee.

Mr. Moore replaces Frank Carpenter, president of United Petroleum Gas Co., who recently was elected chairman of the executive committee. Mr. Guardioli succeeds Erwin S. Kleinmann, vice president of Dearborn Stove Co., as public relations committee head. Mr. Kleinmann continues as a member of the board.

Association Notes

The 10th annual convention and trade show of the Western Liquid Gas Association will be held this year at the St. Francis hotel in San Francisco on April 9-11. The scheduled trade show is the only one of the industry on the coast this year. This being the 10th

RETURN TO PROFIT

Here's a new deal in profitable selling of gas fired and electric water heaters and boilers. Consider it carefully.

Too many of you in the business have been just "trading dollars" on this merchandise. You must do better to stay in business. It's high time that we return to *profitable* selling!

PROGRAM FOR PROFIT

The H. C. Little deal is a program for profit. The program is direct and simple. It is based on three essentials:

- 1 Exclusive, built-in product features that sell!
- 2 A complete merchandising package for volume sales, turnover—and profit!
- 3 Competitive pricing.

Visit H. C. Little at the Chicago 1959 LPGA Trade Show. Booths 139 and 140.

Get the facts!

Let us *show* you the H. C. Little "Return to Profit" program. Mail the coupon—now.



H. C. LITTLE BURNER CO., INC.
251 WOODLAND AVE., SAN RAFAEL, CALIF.

Yes, I'll listen to your water heater and boiler "Return to Profit" program. Send the facts.

COMPANY _____

YOUR NAME _____

ADDRESS _____



birthday of the Association, the ten past presidents are to be particularly honored.

National Tank Truck Carriers Inc. has announced that it will again feature industrial exhibits in connection with its annual convention. The convention and Tank Truck Equipment Show will be held at the Shoreham Hotel in Washington, D. C., May 4 through 6. More than twice the amount of exhibit

space as at previous conventions will be made available. Space will be available also for outdoor showing of trucks, trailers, and other large equipment. Fully descriptive literature and order blanks are being mailed to companies known to be interested. Others may obtain details from NTTC at 1424 16th St., N. W., Washington 6, D. C.

One of a series of service schools, sponsored by the Ohio LPGA was held February 5 at the Belden hotel in Canton. Len Farmer of the Bastian-Blessing Co., spoke to the

group on "Regulation and Piping," and Don Pillen, Minneapolis-Honeywell Co., addressed the men using as his subject, "Furnace Controls." These meetings will be held in various sections of the state at intervals throughout the year.

At a recent conclave of the Kentucky LPGA a program of educational events was planned and approved. These include Kentucky's first Management Conference which was held at the University of Kentucky in Lexington on March 24-25; seven district service schools scheduled during the last two weeks of May with an afternoon and evening session covering Robertshaw-Fulton Controls, other types of heating controls and limit switches, fire fighting equipment and venting; and two annual L. P. gas service schools to be located at the University of Kentucky and at Murray State College.

From January 5-16, 326 L. P. gas servicemen attended one of a series of ten Baso service schools held in Wisconsin. The schools were conducted by Ed Abel, manager, products service division, and assistant Jim Muth, and were promoted by the Wisconsin LPGA. Local arrangements were made by state district directors.



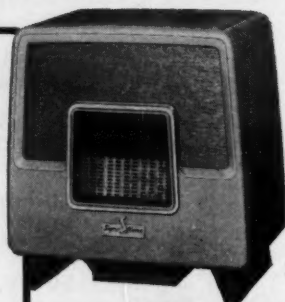
**NOW MY PROFITS
ARE UP HERE!**

INSTEAD OF DOWN HERE
Since I switched to...

Superflame

...and here's why!

- **Superflame** space heaters are easier to sell. The completeness of the line makes it possible to fill every customer need.
- **Superflame** design and appearance appeals to the customer eye. The beauty of these heaters enhance home decor and furnishings.
- **Superflame** performance means satisfied users—and to the LP trade—continuous customers.
- **Superflame** offers stronger support in promotional and advertising help to dealers handling their products.
- **Superflame** understands the needs and problems in the LP business—they know what they're saying when they claim—"Superflame Superiority Sells"!



SEND FOR THIS KIT

QUEEN PRODUCTS DIVISION
KING-SEELEY CORP.
Albert Lea, Minnesota

Please send me the kit "SUPERFLAME
SUPERIORITY SELLS"

Name _____

Address _____

City _____ State _____

DEPT. LP-2

QUEEN PRODUCTS DIVISION, KING-SEELEY CORP., ALBERT LEA, MINN.



LPGA President Art Bone congratulates Sid Langer, president of the Gas Institute of Greater Miami, on a new permanent gas exhibit at the Architect's Bureau of Building Products, Dupont Plaza Center, Miami, Fla. The exhibits include panels which show source, production, manufacture, distribution and consumption of L. P. gas. Like panels include dioramas for water heating, cooking, clothes drying, and safety. Future plans call for refrigeration, air conditioning and heating. Over a three-year period \$60,000 will be spent for a complete gas display.



Butane, Propane

POWER

**CARBURETION • INSTALLATION
• SERVICING**



Under the expert mechanical care of Walt Arnold (left) and the skilled handling by drivers Don Bronson, Dale Hickerson, and Al

Hancock, this LPG-powered tanker has rolled a million miles since October 1952 without a major overhaul.



In recognition of this tremendous record, the mechanic and drivers were honored at a banquet in Bakersfield, Calif., on February 17. Here driver Al Hancock (left) is presented a replica of the "Million Miler" by Bill Richards, Petrolane safety engineer, as Executive Vice President Leonard Andrews beams approval.

Petrolane's LPG-powered "Million Miler"

For a complete report on the truck's performance, see page 84



NOW YOU GET Western Tank QUALITY at the HOTTEST PRICES!

All standard tanks now in stock for direct shipment to dealers.

John Deere "G"

Dealer Price
Was 107.77

Now 69.75

Farmall M
Standard

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was \$92.77

Now \$67.10

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all Western
Tanks similar
to the two
listed here.

Close tolerances that mean a perfect fit everytime, are just part of the superior quality which you now get, at lower prices than ever before, when you order a Western Tank.

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The "Red Devil" insigne of V. J. Tovatt Co. is a familiar sight from coast to coast. The company's 114 trucks, most of which are refrigerated with propane, blanket most of the U.S.

LPG takes over when air freight falters

WILLIAM W. CLARK • Editor

IT doesn't require adversity to prove the value of LPG, but sometimes it helps.

Take the case of V. J. Tovatt Co., a nationwide shipper of refrigerated products. Late in 1958 there came a rash of airline strikes, which hampered air traffic and stranded a number of passengers. Perishable cargo was earthbound. Perhaps the most critical item was flowers, which deteriorate quickly unless held at closely controlled temperatures.

Historically, flowers, being highly perishable, have been rushed about the country by air, with packed ice or specially prepared ice packs being used to keep the products cool in transit. Such methods, according to Tovatt's transportation division manager, R. F. Myers, are somewhat less than scientific. Close temperature control is impossible. However, since they are airborne for only a few hours at a time, precise temperatures have not been too important.

With the strikes, flower associations had to turn to surface trans-

portation. A haul that required a few hours by air took several days by truck. So temperature control within a range of 2 or 3 deg. suddenly became a necessity.

Tovatt was ready to meet the challenge. The company had been conducting tests for some time to determine optimum temperatures and ability of its propane-powered equipment to achieve them. At various times they had offered to make fully guaranteed shipments for various shippers. One of the company's best drivers would be selected for the test run; three

times a day en route he would check the condition of the cargo, take temperature readings, and relay the information back to the office in a long-distance conference. Tovatt's guarantee fully indemnified the customer for damages en route.

As a result, when the strikes began, the company immediately set to work with the flower associations and began trucking flowers between such distant points as San Francisco and New York. The results, reports Myers, were excellent.

(Continued on next page)

When major airlines were grounded during the late-1958 strikes, earthbound transport had an opportunity to prove its ability to haul highly perishable flowers for long distances. With dependable LPG on the job, precise temperatures were held for days at a time.

So once again LPG proved its dependability—in this case, even its superiority over air shipments, according to Myers.

Will propane-powered truck units replace the airlines as a major carrier of refrigerated flowers? Definitely not. They will, however, become an important factor in supplementing airline transport, says Myers. They can operate much as do "feeder" airlines, bringing flowers into a few major airline terminals where they can be consolidated into larger shipments for long-distance transport.

LPG for other perishables

The entry of Tovatt into the flower business only serves to extend the fringes of the business, already well established in the hauling of agricultural commodities. Since Tovatt established its transportation division in 1951 (the company's main business is still, as in the past, the import and export of "Red Devil" fireworks), it has moved into many fields, including such items as farm products, fresh poultry, fish and sea food, shrimp, nursery stocks, bulbs, dormant rosebushes, fresh and frozen fruits and berries, and fresh oysters in the shell for local replanting. West coast fish are trucked to the Eastern Seaboard, and Atlantic fish are trucked back to California. Florida tomatoes are shipped to California, and California's to Florida.

R. F. Myers, Tovatt's transportation division manager, is a propane advocate of years' standing. When he joined Tovatt in 1951, he insisted that all refrigeration units be propane-powered.

These shipments are handled out of any of Tovatt's eight terminals—Lynwood, Calif., the headquarters; Nogales, Ariz.; San Francisco, Little Rock, Atlanta, Portland, Ore.; Bear, Del.; and Lakeland, Fla.

Tovatt is a firm believer in propane as a fuel for refrigeration units. The company owns, operates, or leases 114 trucks, and all but a handful use propane. (The few that do not are among those leased from individual truck owners.) The reason is clear. Experience has proved the economy and dependability of LPG in this application.



Dutch Myers was well aware of it when he left Baton Rouge, La., in 1951 and set up the transportation division for Tovatt. He had had his own "truck stop" service station in Baton Rouge since 1946. It was, he says, the first big truck stop in the state. A large share of his business had been in the conversion of trucks from gasoline to propane.

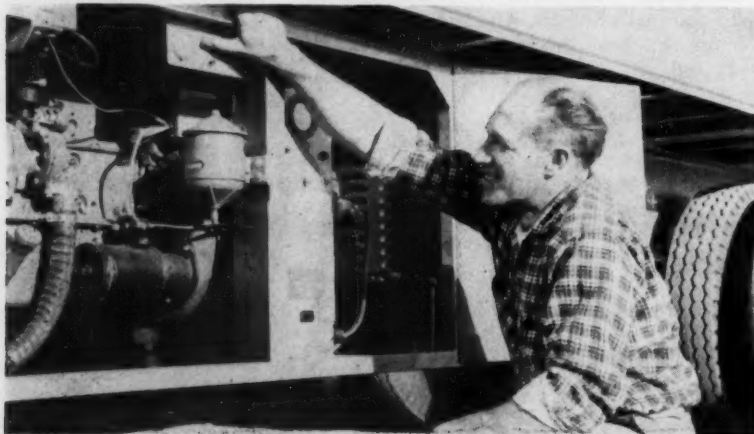
He'd also been involved in the "buy and sell" trucking business, buying produce in the fields and hauling it to market in refrigerated trucks. Those were in the days of the old gasoline "putt-putts"—hardly dependable units, according to Myers, and lacking in the close temperature control needed for this type of cargo. "When we got the produce to market in good condition, we considered ourselves lucky," declares Myers.

So, during his years with Tovatt, Myers has insisted on propane-operated units. These are supplied by Transicold Corp., Los Angeles.

Details of rig

The Tovatt trailers are of 20-ton capacity, and measure 35 ft in length and 98 in. inside height. The Transicold unit is mounted under the trailer bed, on the left-hand side at about the midpoint fore and aft. These are of 5-ton capacity.

Driver L. F. Wood actuates the starter button on the propane engine. Provision is made on the instrument panel to operate only one side of the compressor for pre-cooling.





Driver Bill Watson sets the thermostatic control, mounted on the nose of the trailer, which keeps a constant temperature in the compartment—even with continuous air circulation.



Refrigerated air at 2900 cu ft per minute is channeled over the canopy toward the rear of the trailer. As it spills down the sides it is directed diagonally downward by the stripping on the sidewalls.

A 35-gal. LPG tank is mounted across from the unit, on the right underside of the body. Cold air is blown over the cargo, being introduced into the body at the forward end just under the ceiling and channeled toward the rear by a canopy arrangement suspended from the ceiling. Warmed air is exhausted close to the floor at the front of the trailer.

Just before the first of the year, Tovatt took delivery of 15 new trailers costing a quarter of a million dollars. These are longer—38 ft—and lower—88 in.—than the old, and the net effect is a larger cube capacity. Tonnage is the same. Net loading space is 32 ft 8 in.

A part of the increased capacity in the new units was made possible by the use of a compressed insulation. Each trailer has three-step, three-seal doors. The floors are of extruded aluminum, corrugated to give increased air passage. On the sidewalls, wooden strips are set in a diagonal pattern in such a way as to lead the cold air at a downward angle as it passes toward the rear of the truck.

For these units, 7½-ton Transicold refrigerators were chosen. These are supplied from 50-gal. LPG tanks. However, Tovatt anticipates that fuel usage will be reduced, as the engines will run at a slower throttle. (Here again is

an example of how propane, which runs clean at slow speeds, enjoys a distinct advantage over gasoline.)

The new Transicold units are direct-driven off a 25-hp engine, whereas the smaller (5-ton) units used a 14-hp engine. According to the manufacturer, experience has shown that the 5-ton units will consume between .6 and .8 gal. per hour at a constant rate of 1200 rpm. Experience data are not yet complete on the 7½-ton jobs.

They give constant air delivery, since the compressor does not cycle on and off but has variable capacities. A steady 2900 cu ft per minute is circulated through the refrigerated compartment.

Before a load is taken on, the trailer interiors must be pre-cooled. With the smaller units, pre-cooling to a maximum of 30 deg. requires about two hours; with the new units, one hour will generally suffice. The units have a separate set of controls for this job which cuts in only one side of the compressor. After loading, the entire unit is switched in. The engine turns over at 1900 rpm until the load is cooled to temperature, then cuts back to 1200 rpm. This is accomplished automatically through thermostatic control.

This slow speed gives trouble when the engine is fueled with gasoline. There is no thermal shock

Darrell Hockensmith, who pumps LPG at the Tovatt terminal service station, refuels one of the new 20-ton cross-country vehicles.



to break loose the carbon which forms, and according to the manufacturer the engine must be torn down and the carbon cleaned out at somewhere between 600 and 1500 hours, depending upon operating conditions. Under identical conditions, propane will give double this mileage between maintenance jobs.

The bulk of Transicold's production is in propane units. Gasoline units are generally limited to areas where local restrictions bar the use of LPG. But the company frankly favors the LPG units over gasoline, knowing that the customer will save maintenance costs and reduce engine failures.

Breakdowns are a potentially costly item. A few hours of temperatures exceeding the optimum by only a few degrees could often prove fatal to a load. Some items are held within a 2-deg. tolerance—melons, for example, which must

be held between 38 and 40 deg., according to Dutch Myers. Vine-ripe tomatoes must be held at 53 to 55 deg. (Here too low temperatures destroy the structure of the fruit.) Most flowers now hauled by Tovatt are air conditioned to the 38 to 40-deg. range. But camellias must be held at 45-deg.

All this serves to show that simply refrigerating a shipment is not enough. The temperatures must be controlled to a close tolerance, but through a number of temperature ranges as dictated by the cargo itself.

So while Tovatt is pleased with the savings on maintenance and fuel costs, the company is happiest about the low claims with LPG.

To supply its own vehicles, Tovatt set up an LPG service station, designed and constructed by Petrolane, at its Lynwood terminal. Other operators headquartered at

the terminal also buy from Tovatt, as do transients and regular outside customers. Having its own supply, the company effects extra savings.

The fact that LPG for this use is free from over-the-road taxes is another advantage of LPG over gasoline. But the greatest saving, says Myers, is not in fuel costs, upkeep, or maintenance. It's in claims.

"With gasoline equipment, we figure claims would run 2½ per cent of the total hauling charge," says Myers. "Motor failure, which is increased by the excessive heat encountered in long runs through desert country, is the biggest single cause for this.

"With propane, it's a different story. We are confident we have cut claims costs by 80 per cent."

And think of the customer good will! ■

"A million miles without a major overhaul"

(See Power Cover)

A MILLION miles without a major overhaul have been rolled by an LPG-powered gas truck and trailer unit owned and operated by Petrolane Gas Service, Long Beach, Calif.

Powered by a Hall-Scott Model 480 engine, pulling a Utility trailer, the big Autocar truck has been in continuous service since October 1952. The rig logged 300,000 miles over rugged mountains, always with a heavy load. Since its first year of service, it has hauled more than 2300 loads with an average cargo of 7650 gal. of LPG for a total of 17,595,000 gal. In addition, the engine powered the cargo pump for an additional 3564 hours unloading time.

Yet despite this heavy workload, the truck required less than \$700 worth of engine replacement parts during its more than six years of service. These included the following:

Two sets of valve seats	\$ 72.00
Two water pump shafts	82.00
Two exhaust valves	16.00
Two water pump pulleys	92.00

One accessory shaft	42.00
Four sets of rings and gaskets	240.00
Three sets of clutch plates	114.00
Total	\$658.00
Trailer replacements totaled \$351.79, broken down as follows:	
Eight slack adjusters	\$ 88.00
Eight brake cans	69.12
Fifth wheel ring	194.67
Total	\$351.79

Various mechanical components have given extraordinary service. The trailer's first set of brake bands (Gatke) lasted for 300,000 miles. The Timken-Detroit rear axle has never worn out nor have the original kingpins or pistons. The Smith TC-3 LPG pump has been on the truck for four years without overhaul. The Westinghouse compressors logged over 900,000 miles before a connecting rod gave out.

Petrolane gave its ace mechanic, Walt Arnold, and the three drivers, Al Hancock, Don Bronson, and Dale Hickerson, high praise for pilot-

ing the truck to its magnificent record. The men used every recommended procedure to keep the truck operating with minimum wear. They held the 2200-rpm engine at a maximum of 2000 rpm on pull. They used a vacuum gauge and held between 5 and 7 in vacuum. Drops off hills were at 1200 to 1300 rpm.

So pleased with the record was Petrolane's management that a banquet was held honoring the men at Bakersfield Inn, Bakersfield, Calif., on February 17. Top executives from companies that supplied parts and equipment attended and participated in the presentation of awards. Among these were W. Pringle, president of Hercules Motor Corp.; L. M. Butterworth, General Petroleum Corp.; John Gillette, U.S. Rubber Co. distributors, and others. Leonard Andrews, executive vice president of Petrolane, was toastmaster.

Each of the four received a scale-model replica of the "Million Miler" and a complete Polaroid camera kit.

More than 40 persons attended the affair. ■



Convert your tractor—save up to \$2874

IN any selling job, success hinges on showing the prospect in concrete terms the advantage your product or service offers. This is especially important when you are selling a tractor conversion, because you are asking the prospect to lay out a sizeable chunk of capital which must be amortized over the life of the tractor.

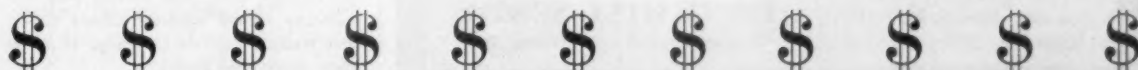
Here are some figures, compiled by Robert Jones of J. & S. Caburetor Co., which you can relate directly to the prospect's pocketbook to show him how much money the conversion investment will actually save him:

Large tractors

Average number of days used per year	100 to 150
Hours plowing time per day	8 to 10
Total hours per year (10 hours x 100 days) average	1000
Gallons of gasoline burned per hour:	
35-horsepower	3.20
40-horsepower	3.60
Average	3.50
Gallons burned per year, gasoline	
3.50 x 1000	3500
Useful life, in years	7 to 10
Average	8
Gasoline consumed in life of tractor	
8 (years) x 3500 (gal. per year)	28,000
Cost over life of tractor (@ 20 cents)	\$5,600
LPG burned over life of tractor (add 10% to gasoline gallonage)	30,800
LPG cost over life of tractor (@ 11 cents)	\$3388
Fuel savings (\$5600-\$3388)	\$2212
Average motor oil consumption per change (qts.)	9
Changes per year with gasoline (Change every 100 hours)	10
Cost per year (10 x 9 x 30 cents/qt.)	\$27
Total cost for life (8 years)	\$216
Oil changes per year with LPG (Change every 400 hours)	2½
Cost per year (2½ x 9 x 30 cents/qt.)	\$6.75
Total cost for life (8 years)	\$54
Motor oil savings (\$216-\$54)	\$162
Maintenance savings (life of tractor)	\$200 to \$500
Total savings	\$2574 to \$2874

Small Tractors

Average number of days used per year	40 to 150
Hours plowing time per day	8 to 10
Total hours per year—average (10 hours x 60 days)	600
Gallons of gasoline burned per hour:	
Light work	1.50
Heavy work	2 to 2.50
Average	2
Gallons per year, gasoline	
2 x 600	1200
Useful life, in years	4 to 6
Average	5
Gasoline consumed in life of tractor	
5 (years) x 1200 (gal. per year)	6000
Cost over life of tractor (@ 20 cents)	\$1200
LPG burned over life of tractor (add 10% to gasoline gallonage)	6600
LPG cost over life of tractor (@ 11 cents)	\$726
Fuel savings (\$1200-\$726)	\$474
Average motor oil consumption per change (qts)	6
Changes per year with gasoline (Change every 100 hours)	6
Cost per year (6 x 6 x 30 cents/qt)	\$10.80
Total cost for life (5 years)	\$54
Oil changes per year with LPG (Change every 400 hours)	1½
Cost per year (1½ x 6 x 30 cents/qt)	\$2.70
Total cost for life (5 years)	\$13.50
Motor oil savings (\$54-\$13.50)	\$41.50
Maintenance savings (life of tractor)	\$200
Total savings	\$715.50



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WEED BURNING L.P. GAS CONVERSION AND MONEY MAKING *with* MANCHESTER L.P.G. EQUIPMENT

There's a time and place for everything. And, NOW is the right time to offset the summer slump by selling Manchester load balancing equipment.

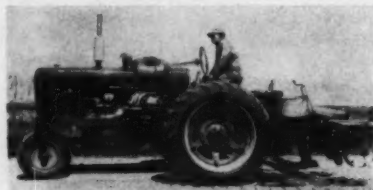
WEED BURNING EQUIPMENT

Power Jet Burners which have proved so successful in industry and on the farm can be handled by the most unskilled labor.

Manchester equipment for non-selective burning is as flexible as the varying needs.



TRACTOR AND MOTOR FUEL L.P.G. TANKS



For fast, easy installation...seventy different L.P. Gas conversion tanks for tractors, trucks, forklifts...specifically designed to produce the "Factory Equipped" look.

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Parkhill Nozzles lock on and open fuel valves in 3 seconds... On release, automatically vent away from hands.

Two sizes: Domestic 7" Truck 11" overall.



Safety Hose Nozzles

1. Long Life
2. Steel-Ductile Iron
3. Easy to Repair
4. Safe

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475 Huntington Drive, San Marino, Calif.

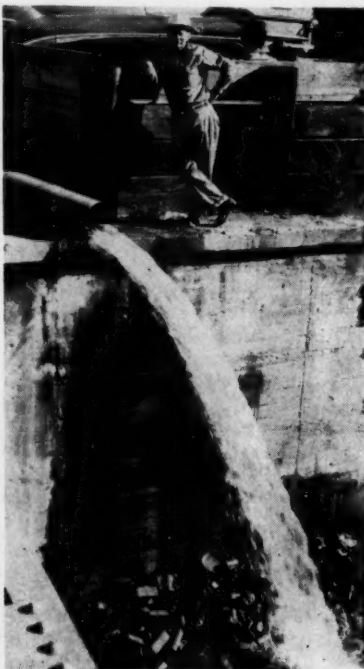
LPG gets rid of the water

WHETHER it's too much, too little or just in the wrong place, water is one of man's basic problems. There are many times that propane power offers the solution.

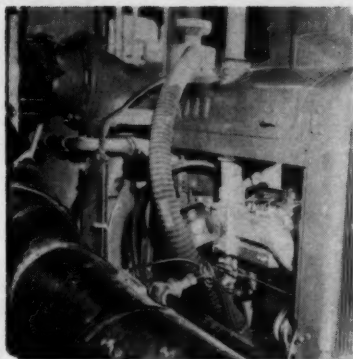
Take for example, the erection of Denver's new \$7 million Post Office Terminal Annex. The location is at 15th and Wynkoop, adjacent to the Denver Union Station and about a block and a half from Cherry Creek. The soil is almost straight sand and gravel, underlaid with a bed of small glacial boulders. The water level is only a very few feet below the surface.

To put down the foundations and footings for a five story, block square building under these conditions requires a bit of doing. One of the first requirements is to get rid of the water.

The General Contractor, C. H. Leavell & Co. of El Paso, Texas, solved the problem with a propane powered pumping system. A well



Propane power keeps working night and day to draw water from working area and discharge it into adjacent Cherry Creek. Jack Neilson, engineer in charge of power plant, surveys the outlet.



A Hercules, 6 cylinder power plant equipped with an Ensign combination carburetor, powers the well point system.

point system was installed at the bottom of the excavation about 18 ft below street level. It is powered with a Hercules, 6 cylinder power plant (about 175 hp) equipped with an Ensign combination carburetor.

Ninety-five well points were put down a distance of 21 feet in a pattern to cover the 100,000 sq ft area. The pump develops a 20 lb vacuum which pulls up the water, which is then forced through a 12 in. pipe line for a distance of more than a block and a half where it empties into Cherry Creek.

This has efficiently drained the working area of the water; in fact it has dried up many of the shallow wells for several blocks around.

At the time of this interview, the propane powered engine and pump had been running 24 hours per day without stop for more than three months.

Jack Neilson, engineer in charge of the plant has been over 25 years in the construction business and he is thoroughly sold on L.P. gas.

"There is no 'down time'," he says. "With ordinary gasoline power it is necessary to grind valves or replace them at least once every three weeks. L.P. gas does away with that expense. It provides reliable, steady power over a long period with no time out for overhauls.

Red Dot Gas Co., a subsidiary of Suburban Gas, is the fuel supplier. The 500 gal fuel tank must be filled twice a week to keep the plant operating. A substantial number of salamanders are fueled from separate tanks and add materially to the total gas load. ■

CENTURY **LP*** MEANS

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***LUGGING POWER**

ONLY CENTURY LP-CARBURETION SYSTEMS OFFER ALL THESE FEATURES:

- * Lugs down without fading ... holds mixture correct during recovery
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- * Exclusive triple action filtering with screen-felt-chamois system and positive lock-off in one unit
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power ... more efficiency

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Decatur, Illinois

WHAT'S

NEW

IN PRODUCTS AND TRADE LITERATURE

For further information on items reviewed in this section use the convenient post-paid Readers' Service Cards on pages 89, 90



Norco's 1959 refrigerator line

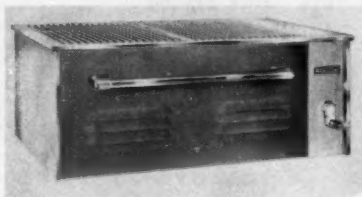
Norco has announced its 1959 new-look, slim-line gas and electric convertible Norcold refrigerators, in the 4- and 6-cu ft. sizes. They are made in three pastel decorator colors and white and are guaranteed for ten years. The gas refrigerators approved by AGA have no moving parts. The 6-cu ft refrigerator has cross-top freezing and an automatic interior light. The electric gas refrigerator is designed to convert from gas to electricity in just ten seconds. Designed mainly for the dealer, a four page, full color 8½ x 11 in. folder fully illustrates and explains the new units and their many general applications. A six page, smaller folder (3 x 6 in.), is designed for consumer use and is available in quantity.

Circle 1 on Readers' Service Card

Explosion-proof thermostat

An explosion-proof thermostat, UL approved for Class 1, Group D hazardous areas, has been announced by Fenwal. Designed for immersion in tanks, wall installation, and for exposure to contaminated environments, it is made up of three sub-assemblies: a Series 47000 Thermoswitch unit, stainless steel well, and an explosion proof junction box that completely protects the lead wire outlets. The unit is completely adjustable over a 32 to 500 deg. F range, and can be exposed indefinitely to -100 deg. F, or, for short periods, to 100 deg. F above its set point.

Circle 2 on Readers' Service Card

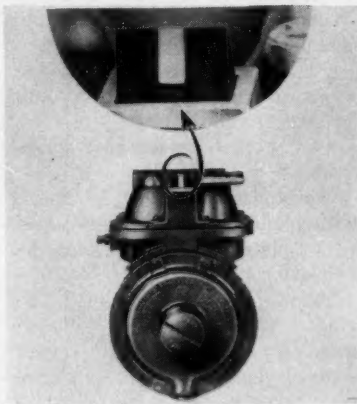


Barbecue built-ins

The new, 1959 Majestic Char-Grill line of indoor barbecue equipment features five different built-in barbecues, plus high capacity vent-hoods, electric spits, and other accessories. The gas barbecue utilizes random briquettes of special ceramic material, placed over the grate, to catch and

retain the heat, allowing gas to be turned low for simmering. The burner is fed with a high 25,000 Btu heat through ¾ in. inlet which connects to any existing or extended gas supply. All five models feature a convenient front door for access to the gas control.

Circle 3 on Readers' Service Card



Easy-to-check regulators

A molded lucite prism through which the indicator for the reserve cylinder is visible from a 30 ft distance is the new feature of the latest Rego Certimatic automatic throwover regulators. Coated with highly reflective red Scotchlite, the new reserve indicator flag operates beneath an unbreakable molded prism. The Rego Certimatic regulator combines

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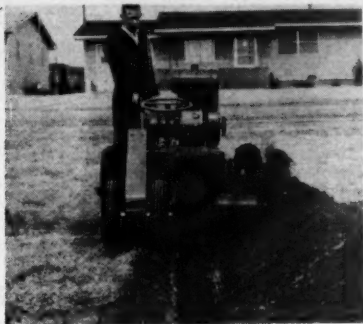
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two-stage regulation and automatic throwover to the reserve cylinder. Uniform delivery pressure is provided from pilot light to 225 CFH (568,000 Btu) per hr. Inexpensive conversion kits are available to add the prism indicator feature to existing units, according to the manufacturer, Bastian-Blessing.

Circle 4 on Readers' Service Card



New trencher

"New throughout" is the 1959 model M-3 Ditch Witch trencher by Charles Machine Works. New features are: all riveted 20,000-lb test digging chain; improved digging teeth, heat-treated with Studite hard-surfaced cutting edges; telescoping digging boom; spring tension adjustment for digging chain to insure correct chain tightness and eliminate stalling in toughest digging; and new factory-sealed, ball-bearing-mounted planetary gear reduction unit with a single lever shift. Standard equipment includes: three-piece telescoping boom to provide selection of 2, 3, 4 or 5 ft boom; three-piece digging chain for depths of 2, 3 or 4 ft; complete selection of digging teeth to cut 3, 4, 6 or 8 in.

Circle 5 on Readers' Service Card



Built-in appliance line

Chambers has marketed new models and designs of matched and packaged built-in kitchen appliances for 1959. Included are ovens

Like Carpeting with

HEAT

ON 14% LESS GAS

The Riviera

VENTED
CONSOLE
SERIES

CONTINENTAL II
Radiant front, Pyrex paneled. Sizes from 35,000-65,000 Btu.

CONTINENTAL I
Lowboy model & fully enclosed. Sizes from 35,000-65,000 Btu.

CONTINENTAL "STANDARD"
Modified counterpart of Continental I. Sizes from 15,000-30,000 Btu.

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WINTER AIR CONDITIONER

For Efficiency, the RIVIERA reigns unchallenged . . . more Heat on less Gas. Delivers greater volume floorward; insures more Living Zone comfort. "Cool Cabinet" eliminates fringe waste, centralizes total heat supply . . . Giant Fan delivers it quietly, gently everywhere, room or apartment. Completely Automatic (Safety Pilot, Room Temperature & Fan) with 100% Safety Shut-off in case gas fails.

EXCHANGER is 100% welded (burner to flue); and "dimpled" to muffle thermal noises. Castiron Combustion Head takes all heat shock; lasts a lifetime. Hi-Fi Burner is castiron, non-clog; insures "balanced-flame" combustion, quiet on any gas. Access to all controls and adjustments via front Service Door.

EASIEST, SIMPEST TO INSTALL
Only low Floor Chassis needed to couple, regulate, test; then, place Cabinet and lock. Ends fuss, muss and fumbling.

OFFERED IN SIZES FROM 35,000-70,000 BTU

Write for

CATALOG NO. 59 for all Consoles, Utility and Fireplace Heaters.

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Heaters

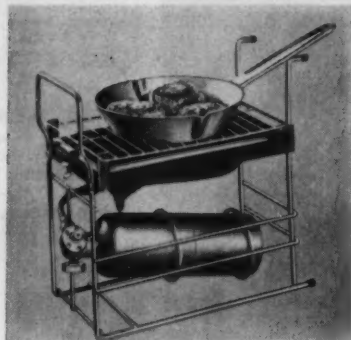
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and surface units, refrigerator-freezers, dishwashers-dryers, disposers and ventilating hoods. The appliances are coordinated in color, design, materials, styling and finish.

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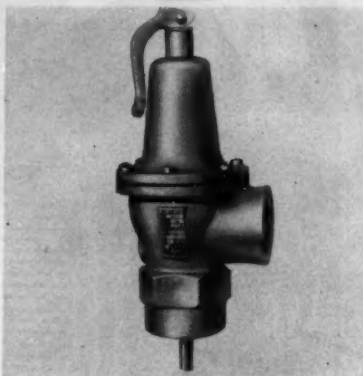


Catalytic heater-broiler

A combination portable stove, vertical broiler and radiant heater is now being offered by Devonair Products. The unit, called the Devco, is based on a new principle of gas heating and cooking—a catalytic method of producing flameless infra-red radiant heat. The catalytic burner is perma-

nently coated wire-mesh screen that burns propane gas flamelessly, turns cherry red to radiate true infra-red heat energy. Single disposable fuel cylinder operates for two to six hours. The unit is the size of a large lunch pail and weighs only 9 lb with fuel. It develops as much as 9500 Btu of radiant heat from a cold start in a matter of seconds.

Circle 7 on Readers' Service Card



Large T & P relief valve

Said to be the only valve of its type available, the Watts No. 340 is a new large capacity ASME-

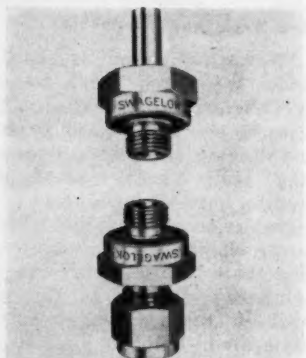
rated combination temperature and pressure relief valve. Equipped with test lever and 1½ in. female inlet and outlet connections, it features all-bronze construction, guideless stickage-free seating design, and extremely high capacity. It may be installed in locations previously using two or more smaller valves, has an ASME steam pressure rating of 5,707,000 Btu per hr at 125 lb. and a temperature water rating of 3.5 million Btu per hr.

Circle 8 on Readers' Service Card

Gas lamps

Modern Home Products announces the availability of its Charmglow gas lamp. Made of solid copper or cast aluminum, it is available in a wide variety of finishes.

Circle 9 on Readers' Service Card



O-ring seal fitting

Announcement of a new type of O-ring seal fitting with tapered pipe threads, permitting connection to an existing female pipe thread and securing a positive seal without the use of sealants, is made by the Crawford Fitting Co. The seal is built integrally into the body of the fitting. Available in all machinable metals and plastics in sizes for 1/16 in. through 1 in. od tubing. It can be furnished in a variety of materials to meet specific requirements.

Circle 10 on Readers' Service Card

One-man hydraulic crane

A one-man hydraulic crane, capable of lifting 1500 lb with a 44 in. boom, has been announced by Ideal Crane Co. It is available with either inside or outside truck mounts as standard equipment. A floor dolly is available at extra cost



Suspended gas unit heater—duct furnace—floor model room heater . . . no matter what you need, it's as close as your telephone. Just give your Reznor distributor a call. He should be able to meet your requirements right out of his warehouse stock. Reznor dealers don't miss sales because they can't get delivery. If it's Reznor equipment, it's available today from the Reznor distributor in your town.

AVAILABILITY—just one of the many reasons why Reznor dealers make sales . . . and more money. Ask your Reznor distributor for the complete story.



Reznor Manufacturing Company, 4 Union Street, Mercer, Pa.

for shop use. Every Ideal Crane is uniform and is interchangeable among all truck mounts and floor dollies. The company also offers accessories of barrel chains, nylon appliance straps and boom extensions.

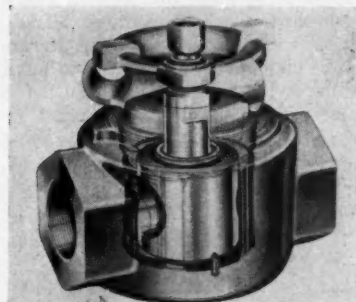
Circle 11 on Readers' Service Card



Plastic microphone

A lightweight, plastic microphone is now standard equipment with all General Electric Progress Line mobile two-way radio units, replacing conventional metal types. Built to withstand extreme conditions of vibration and corrosion, the mike uses a controlled magnetic cartridge.

Circle 12 on Readers' Service Card



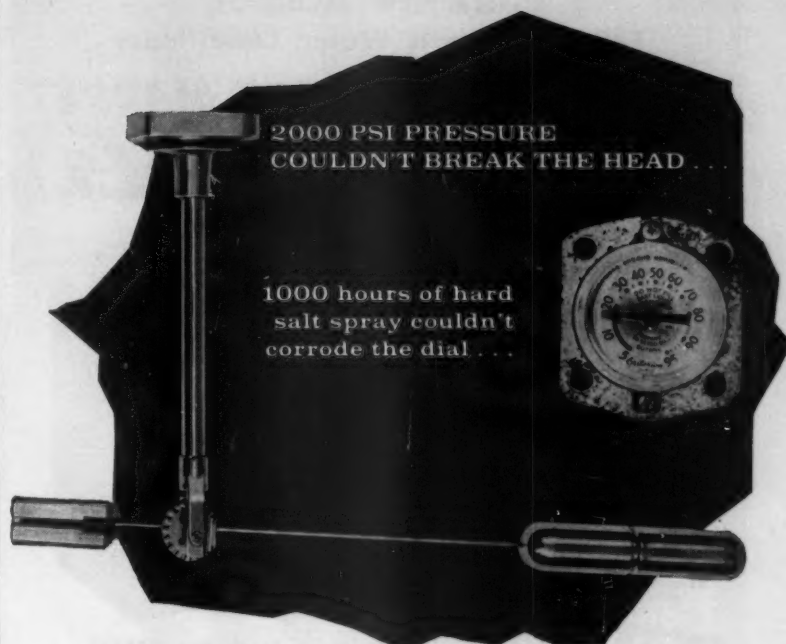
Non-sticking plug valve

A valve, field-tested severely up to 15,000 psi, is stronger and 40 per cent lighter than conventional tapered plug valves, needs approximately 50 per cent less turning force, can be overhauled in the lines, and can be used in lubricated or non-lubricated service, according to Hamer Valves.

Circle 13 on Readers' Service Card

Filtered air clothes dryer

Filtration of incoming air before it is heated or comes in contact with wet clothes is being featured for the first time by Maytag in its



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ROCHESTER *Criterion* Gauge is the
most rugged in the LP Gas Field!

The *Criterion* aluminum gauge head is one piece — there are no rivets, no welds, no weakening joints of any kind. The special Alcoa aluminum alloy used in the head is corrosion proof. These exclusive *Criterion* features mean extra profit for you.

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For soft, rust-free, filtered water —
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A complete city and well water conditioner, Elgin's new Cabinet Model 50 softens water, removes rust and filters for sparkling clarity in one automatic operation.

The Model 50 is easy to install and requires minimum maintenance and salt attention. A "most wanted" appliance, easily sold on its looks and performance in city and rural areas alike, it is a natural tie-in with home improvement plans.

Elgin also produces a sales-mate for the Model 50 — the economical, semi-automatic Model 60 tank-type unit. A 3-year guarantee, plus a 10-year warranty, is furnished on both units. And Elgin provides you — the dealer — with sales stimulating merchandising aids and demonstrators to make your selling job easier and more professional.



Semi-Automatic
Model 60



Fully Automatic
Model 50



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Vapor Operated

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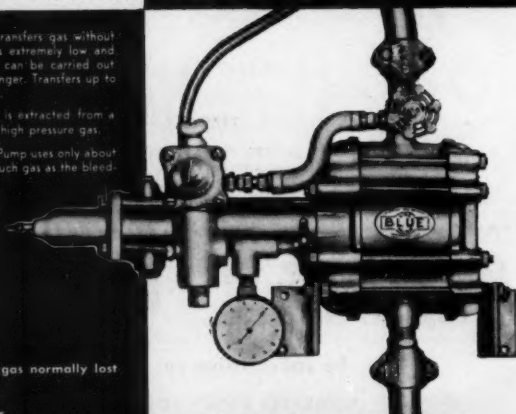
Quickly and easily transfers gas without bleeding. Vapor loss is extremely low and the transfer operation can be carried out in the field without danger. Transfers up to 24 gallons per minute.

Power for the pump is extracted from a very small quantity of high pressure gas.

The Vapor Transfer Pump uses only about 1/20th or 1/10th as much gas as the bleeding method.

SAVES:

- 90 per cent of gas normally lost in bleeding
- Time in transfer
- Danger from excessive gas escape
- 1/2 of investment cost in engine compressor
- Trouble with "balky" engines



Dependable Equipment Since 1886

"Halo of Heat" gas clothes dryer. The new filter covers air vents on the back of the dryer. Air is filtered as a suction fan pulls room air into the cabinet, over all sides of the drum and through the circle of even heat that surrounds the entrance to the tumbler drum.

Circle 14 on Readers' Service Card



Hydronic home heating

The Peerless Heater Co. has introduced a midget cast iron boiler. According to the company, it is a proven small boiler with a large heating capacity for installation in a limited space. It incorporates a Minneapolis-Honeywell "Powerpile" pilot-burner generator, thereby generating its own electricity to operate the main thermostat. There are three basic sizes rated 70,000, 95,000 and 120,000 Btu per hr input (city gases); available to burn other types of gases, with all three sizes offered as packaged units.

Circle 15 on Readers' Service Card

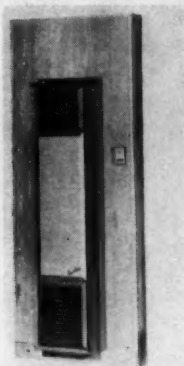


Spherical fire extinguisher

A unique spherical, disposal-cartridge fire extinguisher has been introduced by Ansul Chemical. The unusual shape permits storage in minimum space and gives a high center of gravity, permitting effective one-hand operation and accurate control of

the flame-killing stream. A squeeze of the trigger-grip sends a steady stream of dry chemical onto the blaze with an effectiveness rated equal to eight pump-type, one-quart carbon tetrachloride extinguishers.

Circle 16 on Readers' Service Card



Direct-vent wall heater

Deliveries have started on a new direct-vent wall heater, the Quaker "Decorator." The manufacturer, Heil-Quaker, states that only the Decorator may be installed in any of three positions: fully recessed, partially recessed (shown), or hung on the wall "like a picture." In any of the positions, the outside vent mounts flush. Utilizing the counterflow principle, the Decorator delivers heat at the floor for maximum comfort and economy and has the further advantage of using outside air only. Capacity is 30,000 Btu per hr input.

Circle 17 on Readers' Service Card



Roper's 1959 range line

Three Gourmet models head the line of 1959 ranges being introduced by Geo. D. Roper. The Gourmet 30, 36 and 40 in. sizes, plus many other ranges in the line, qualify for the AGA's Gold Star

Award. Featured on the ranges is Roper's Circle-Simmer top burner and an improved version of the Rotis-O-Grill range-top rotisserie-broiler-griddle. Also available is the Epicure series, followed by Deluxe and Custom models.

Circle 18 on Readers' Service Card

Flame detecting unit

A flame detection device that can be used on all types of commercial and industrial heating or processing burners has been introduced by Minneapolis-Honeywell. Heart

of the flame detector is Honeywell's recently unveiled ultraviolet-sensitive tube. The tube works with an amplifier circuit to add up the impulses of electrical energy generated by the tube as it counts the ultraviolet rays present in all types of flame.

Circle 19 on Readers' Service Card

NPTF threaded pipe fittings

Dryseal threaded NPTF pipe fittings, which have proven to eliminate "leakers," are available. They are said to increase impact resist-



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Will fill all small LPG tanks as fast as any larger pump.

100 LB. CYLINDER 4 min. or less; 20 lb. cylinder 1 min. or less; fork lift tanks no problem; motor vehicle fuel tanks, 8 g.p.m.

Money saving advantages not found in other makes:

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2. Built-in 2-way bypass valve.
3. Motor has built-in switch and thermal overload protection.
4. Easiest to install, no strainer to pipe in, bypass easiest to connect, wiring simplified.
5. Smith Mechanical Seal, safest and most trouble-free.

NOW U.L. APPROVED. Specify the EG-1 pump for intermittent-duty service, filling all small tanks (up to 10 or 12 a day).

Save money on first cost, installation cost, and on maintenance.

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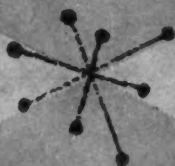
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GAS RANGES

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ALL THE WAY**



**MODERN
ALL THE WAY**



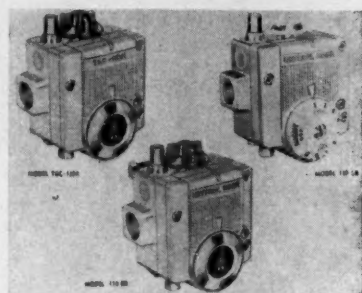
You see quality craftsmanship and modern styling in the new BROWN Featuramic Gas Range. Outstanding features and the look of excellence make this a range to be desired. For more satisfied customers and full profits — insist on quality and modern styling — insist on BROWN.

Manufactured by

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CLEVELAND, TENNESSEE

ance from 33 to 40 per cent. In stock for immediate delivery is a line of fittings in pipe sizes $\frac{1}{8}$ in.-27 through 2 in.-11 $\frac{1}{2}$ in the Hot Dip galvanized finish plated with brass dichromate or in a special process dull zinc rust-proof finish. The fittings include tees, 45 and 90 deg. elbows, reducing couplings and tees, pipe caps, hex bushings, unions and nipples.

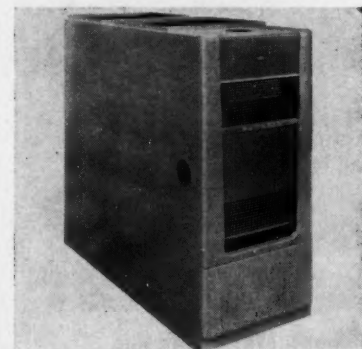
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Small appliance controls:

To meet the need for small appliance controls, a line of precision built, compact devices has been introduced by Grayson. Basic in the new series is the TSC-110R, a manually operated control for use on console heaters, bathroom heaters and vented and recessed wall heaters. For automatic control of the appliance, it is available with a snap-action hydraulically operated thermostat which is sensitive to return air flow—known as the 110SR. Automatic operation utilizing a wall thermostat is accomplished by addition at the factory of a 24-volt heat motor type automatic valve. This model is 110ER.

Circle 21 on Readers' Service Card



Furnace line

Carrier Corp. announces a new Lo-Boy series to add to its Winter Weathermaker line of furnaces with easy adaptability to summer

GENERAL L-P GAS TANKS

20 lb.—40 lb.—60 lb.—100 lb. Cylinders

Complete Line of Accessories for Single or Double Hook-ups . . . Regulators—Valves—Racks—etc. Everything that is needed for complete Bottle Gas Installation.

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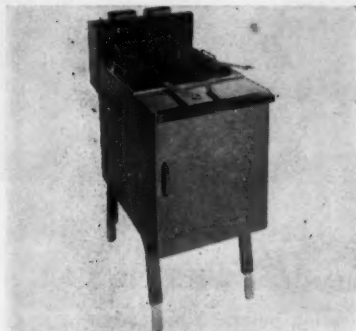
cooling. The heat exchanger is coated with a combination metal and ceramic material to withstand high temperature. The series includes six sizes with inputs ranging from 75,000 to 200,000 Btu. All are equipped with proper blower and motor selection for both heating and summer cooling.

Circle 22 on Readers' Service Card

Giant built-in oven

Claimed to be the only 18 in. wide built-in gas oven without an exposed vent in the instrument panel, this new Modern Maid features a recessed control panel. Available extras are a triple-spit rotisserie, chrome oven door lining, and the Roastender, which buzzes and cuts off the oven at the selected temperature. Manufactured by Tennessee Stove Works.

Circle 23 on Readers' Service Card



Highly efficient fryer

Reported to have a greater input per pound of fat than any other gas fryer is the new Model 14-HL Super-Chef fryer. The 81,000-Btu unit uses only 25 lb of fat, saving 10 to 15 lb with each change. Features include: a full 14 in. square frying area; lift-out strainer tray that simplifies sediment removal; drawstring filter stacks that provide one-minute filtering; a gas-operated electronic thermostat with 2 deg. accuracy; 100 per cent safety pilot controls that supply the current so no plug-in is required, and a silent, lifetime square burner.

Circle 24 on Readers' Service Card

Nozzle mix burner

A new nozzle mix burner has been developed by Hauck Manufacturing for heating processes requiring sealed-in firing with a commercial fuel gas. Advantages

claimed are: the application flexibility and advantage of firing with nozzle-mixed gas over a wide range of burner capacity, with exceptional flame stability; positive lighting at any burner setting on hot or cold furnaces, kilns, or retorts; quieter combustion than with premix burners; greater heat distribution because of the higher forward velocity of combustion gases; no flashback because air and gas mix at the burner outlet; elimination of proportioning mixers; a uniform fire without excessive burner tile temperatures; and

satisfactory performance with normal or excess volume of air or gas.

Circle 25 on Readers' Service Card

Built-in range line

A line of built-in gas ovens and cooking tops, called the Debon-Aire, has been unveiled by Stiglitz. Among the features of the chrome-lined ranges is wrap-around fiberglass insulation that guarantees even heating throughout the 18-in. ovens at 15 per cent lower heating costs. Cooking tops, which have

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For safe, dependable service, no other pump gives you so many valuable features

- ★ Ideal for truck, bottle filling or bulk plant installation.
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- ★ Easily replaced wearing parts.
- ★ Differential pressures up to 100 psi and hydrostatic pressures up to 1250 psi.

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In these days of spiraling prices, it may seem incredible that you can buy so much practical information and education for so little. But the subscription price of B-P News is still what it was years ago—\$2 for one year, \$3 for two years.

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SAVE UP TO 30% IN FUEL COSTS

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20,000 BTU — 35,000 BTU — 45,000 BTU

Fully Approved by AGA, Leading Utilities and LP-Gas Marketers

For complete details write to Dept. BP-459

SUBURBAN APPLIANCE CO.

GENERAL OFFICES — WHIPPANY, N. J.

FACTORY — DAYTON, TENN.

two to four-burner units, have Thermo-Magic controls. One model has a built-in griddle between four burners. The ovens are available in six colors and there are six cooking top models.

Circle 26 on Readers' Service Card

TRADE LITERATURE

Air conditioning booklet

Arkla has a new booklet, "A New Way of Life with Gas All-Year Air Conditioning." The booklet is based on a survey conducted by the National Association of Home Builders to find out exactly what happened when a family moved from an ordinary home into one that was air conditioned for year-'round living.

Circle 27 on Readers' Service Card

One-man trencher booklet

The Arps Trench-Devil, Model M-A, a one-man operated trencher, is described in an illustrated 6-page bulletin. Self propelled, it digs trenches 2 3/4 in. to 8 in. wide, up to 54 in. deep.

Circle 28 on Readers' Service Card

Two-stage regulator data

Fisher Governor now has available a four-page catalog describing in detail its L. P. gas two-stage regulator packages. These packaged units are complete and ready for installation, including first and second stage regulators, pigtail and mounting bracket.

Circle 29 on Readers' Service Card

Gas range information

The new Morley-Majestic Commercial Gas Range Catalog shows the entire line of heavy duty and restaurant type ranges, deep fat fryer, the special burner type broiler and other related items which make up a full line of institutional cooking equipment.

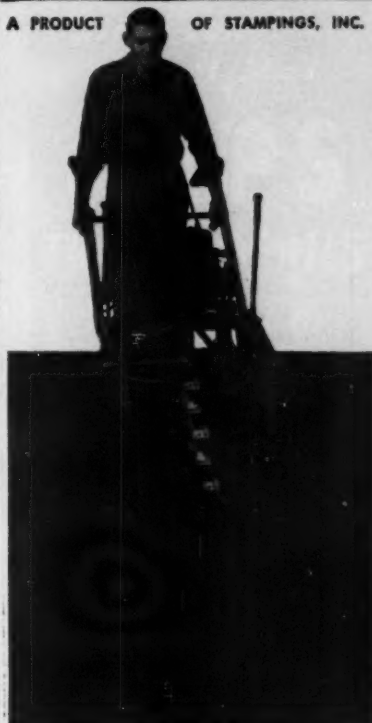
Circle 30 on Readers' Service Card

Fan and limit control folder

"The most complete line of fan and limit controls" is the title of a four-page folder issued by White-Rodgers. Each of the three series available is described. Application information is included.

Circle 31 on Readers' Service Card

A PRODUCT OF STAMPINGS, INC.



**THIS TRENCH IS COSTING
ONLY 1 CENT PER FOOT**

with the

**POW-R-SPADE
TRENCHER**

Unsolicited performance reports from actual users state that POW-R-SPADE narrow trenches cost only 1 cent to 3 cents per foot, including labor. (Many report much less than 1 cent per foot.) Digging speed varies from 1 1/2 ft. to 17 ft. per minute depending on soil conditions. POW-R-SPADE is light, rugged, with minimum of maintenance. Shipped completely assembled. Neat, fast, professional trenches—3 in. wide to 24 in. deep, or 4 in. wide to 18 in. deep. Send coupon today.

One man can transport from job to job.



Stampings, Inc., 1017 1/2 Mead St., Davenport, Iowa
Please send complete information on POW-R-SPADE:

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COMPANY _____
STREET _____
CITY _____ STATE _____



let *Flo Curves* and her
**Little
Puzzlers**
make your men more productive



Flo rewards your men for learning with ...

an all-expenses-paid **VACATION TRIP FOR TWO** via TWA SKYLINER. The grand-prize winner can choose 8 fun-filled days in California or 10 days in Nassau and Miami. 50 other wonderful prizes for the runners-up in Flo Curves' Little Puzzler training contest.

Mail the coupon now, and your men will receive Flo Curves and Her Little Puzzlers in the mail once a month.

There's no charge, of course. This is another feature in Selwyn-Pacific's continuing program of service to the LP dealer.

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Please send me your FREE "Flo Curves and Her Little Puzzlers" training course for my men at no obligation whatsoever.

COMPANY NAME — PLEASE PRINT.

ADDRESS

CITY STATE OR PROVINCE

Please send _____ copies each month.
(1 for each man)

YOUR NAME

POSITION

seLpac



THE TRADE

RALPH A. PURCELLI, executive assistant to the general manager of Rockwell Manufacturing Co.'s Barberton, Ohio, plant, has been named general manager of the company's Porterville, Calif., plant. Before being promoted to his most recent position in 1957 he was general manager of Rockwell's Statesboro, Ga., plant. He joined the company in 1936. Mr. Purcelli replaces Charles N. Perry who has resigned.



R. A. Purcelli
Rockwell



C. P. Clements
Buttorff



J. H. Williams
Weatherhead



W. T. Brent
Temco

C. PAUL CLEMENTS was named to the board of directors and elected vice president of Phillips & Buttorff Corp. He has been with the corporation since 1955 and has served in various management capacities. Presently he is general sales manager in charge of all sales efforts. **M. LOUIS WAKEFIELD** was elected vice president in charge of manufacturing. He will be responsible for all manufacturing activities for the firm. Mr. Wakefield joined the company in 1957.

JOHN F. SANDERS has been promoted to the position of assistant district manager of the Neptune Meter Co. He will assist Ira T. Collar, the firm's local district manager. Operating out of the company's North Kansas City, Mo., office, Mr. Sanders will be responsible for supervisory assistance in directing the sales, distribution and service operations relating to Neptune Meter products in the states of Missouri, Kansas, Iowa and Nebraska.

ROBERT D. BUTLER has been appointed sales manager—plug valves for W-K-M, a division of ACF Industries Inc. He has had five years experience as a sales representative for the company. Last year he was promoted to assistant to the sales manager.

JAMES H. WILLIAMS, general manager of the L. P. gas division of the Weatherhead Co., has also assumed the increased responsibilities of manager of export sales, it is announced. He has been associated with the company since 1949 and has served successively as a regional sales representative and divisional sales manager before his appointment as general manager of the L. P. gas Equipment division last year.

The appointment of two sales managers and a coordinator of promotion and advertising is announced by Cities Service Oil Co.'s Marketing division. **A. N. HAENGGL** is manager of consumer sales, and **HARRY GOOLD**, manager of dealer sales. They will assume their new duties about April 1. The company's marketing promotion and advertising are consolidated under the direction of **M. H. GLAZER**.

ALBERT Y. WOODWARD has been appointed a vice president of Signal Oil & Gas Co. He joined the company in 1935 and at the present time heads Signal's government relations in Washington, D. C.

HY BRODSKY has been appointed public relations director for Allen B. Du Mont Laboratories Inc. Mr. Brodsky, who joined the company in January 1956, has been publicity manager.

PATRICK L. MCMANUS is assistant manager—marketing division and eastern regional sales manager of the Worthington Corp. He joined Worthington in 1936. He served in various sales capacities at the corporation's Seattle and Cleveland district offices prior to his appointment in 1952 as manager of the San Francisco district office. Replacing Mr. McManus as manager

of the San Francisco office is WILLIAM M. FINE, who for the past five years has been serving as manager of the Minneapolis district office. Mr. Fine joined the Worthington Corp. in 1939.

JOSEPH LABARBERA has been advanced from manager of production to vice president of manufacturing of the J. B. Beaird Co., Inc. He joined Beaird as assistant plant superintendent in April 1955 and was promoted to manager of production Oct. 1, 1957. In his new capacity, he will be responsible for all manufacturing operations of the company's three plants, in Shreveport, La.; Clinton, Iowa, and Stockton, Calif.



J. LaBarbera
J. B. Beaird



J. E. Daugherty
Robertshaw

JOHN E. DAUGHERTY has been named sales manager, International department, Robertshaw-Fulton Controls Co. He joined the company in 1949. He was service engineer of the firm's Robertshaw Thermostat division from 1949 to 1955. Since 1955, he has been export sales engineer in the International department.

WILLIAM T. BRENT is the new manager of Temco Inc.'s wholesale division. The wholesale division serves dealers in Middle Tennessee and southern Kentucky with a complete line of gas heating equipment, air conditioning, and supplies. Mr. Brent's responsibilities will include supervision of all activities of this division. He has been connected with Temco for the past six years, serving as district manager and sales promotion manager.

JOHN E. STREHLE has been appointed southern Florida district sales manager at Pompano Beach and JACK NAJORK has been placed in charge of the General Electric two-way radio office in Chicago. Mr. Strehle was previously communications engineer for G-E's Communication Products office at Tampa. Mr. Najork was formerly in charge of G-E two-way radio sales in southern Illinois.

EDWARD A. LEARY has been appointed national sales promotion manager for the Norge division, Borg-Warner Corp. He will direct national planning and execution of Norge home appliance promotions through 87 distributors. For 12 years Mr. Leary was associated with Chicago and Cleveland advertising agencies.

E. W. MURRAY has been named district sales manager for Robertshaw Thermostat division, Robertshaw-Fulton Controls Co., and will have his headquarters in St. Louis at the company's new sales office at 8135 Forsythe Blvd. He will be in charge of marketing the firm's cooking controls.



E. W. Murray
Robertshaw



Fred Whisman
Fisher

FRED WHISMAN has been appointed Fisher Governor Co. L. P. gas equipment sales representative for Missouri, Kansas, Nebraska and the Mountain States. He became associated with Fisher in 1954. For the past two years he has been territorial representative for the company in the Rocky Mountain area, with headquarters in Denver.

FLOYD YUDELSON has been appointed a sales representative for the Welbilt Corp. in the Los Angeles area. He will represent the company's air conditioner line exclusively to the retail trade. T. H. PIPKIN will handle the sales of the company's line of ranges and air conditioners, in the Texas territory, covering Dallas, Fort Worth, Lubbock and Amarillo. Air conditioner sales through builder distributors or to builders directly will continue to be handled by LILLIAN FERBER.

The National Ideal Co. has announced the promotion of three of its sales organization members to newly created posts in the company sales division. R. E. MAXFIELD, formerly special service manager and factory manager, has been appointed general sales manager—eastern division. LYNN MYERS, formerly district manager of the Ohio

*Dig Ditches at
Lowest Cost*

ARPS TRENCH DEVILS

*Cost Less to
Own and Operate*



Model
JR

- ★ Versatile — Digs 2 3/4" wide trench up to 20" deep
- ★ Fast — Ditches 6' per minute at 20" depth
- ★ Simple — One-man operation
- ★ Portable — Easily loaded on pickup

You can eliminate the slow, costly, hand labor of digging L.P. Gas lines with the new, low cost Arps Model JR Trench Devil. This handy tool increases production while cutting operating expenses — digs 100' of trench for about 12 cents! The simple mechanism keeps maintenance costs low — lightweight, rugged construction assures years of profitable use. Unique curb attachment available for easy digging inside a concrete curb.


For larger jobs the self-propelled Model M-A Trench Devil digs trenches 2 3/4", 3 1/2", 4", 6" or 8" wide, up to 6' deep. Has smooth, hydraulic drive for speeds up to 1200' per hour.

Send for more information today on these two new, low cost trenchers from the Arps Corporation, New Holstein, Wis., Dept. BFN.

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TRENCHERS
HALF-TRACKS
BULLDOZERS
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**LP-GAS
VAPORIZERS**

Specified by
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throughout industry.
Units are applicable
to ammonia
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The **KNOW-HOW** **BOOK for LPG**

- DEALERS
- SALESMEN
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The Bottled Gas Manual has been accepted by many companies as the quickest way to acquaint new sales and service men with typical bottle gas problems. This 352 page (24 chapter) text book brings practical "working" facts to your entire staff in non-technical language. Nearly 10,000 copies in use.

\$4.00 per copy

We pay postage on orders accompanied by check or money order. In California add 4% for sales tax.

Butane-Propane News
198 S. Alvarado Street
Los Angeles

River Valley territory, has been named general sales manager—western division. **GLEN D. OGILVIE** has been appointed general sales manager—Canadian division. He has represented the company in all the Canadian provinces for a number of years.

D. REX SCOTT has been named assistant general manager of Robertshaw-Fulton Controls Co.'s Western Research Center in Anaheim, Calif. He has been director of planning for the controls firm at its Richmond, Va., headquarters. Previously, he was district sales manager at the firm's Cleveland office.

MORSE G. DIAL, president of Union Carbide Corp. has assumed the newly created office of chairman of the board and continues as chief executive officer. **HOWARD S. BUNN**, former executive vice president, has succeeded Mr. Dial as president. Mr. Dial has been president of Union Carbide since 1952. He joined the company in 1929 and became manager of the "Pyrofax" division in 1930, transferring to the Chemicals company in 1934. Mr. Bunn joined Union Carbide in 1922 and became advertising manager of the "Pyrofax" division in 1926.

MAX FETTY, former vice president of Delta Tank Manufacturing Co., Inc., Baton Rouge, has joined Gillis & Hundemer Inc., Baton Rouge advertising and public relations agency as a corporate member. As of February 1 the company has been known as Gillis & Hundemer & Fetty Inc. He was named advertising manager of Delta Tank in 1950 and was elected a vice president of the company in 1955.

M. HAYNE HAMILTON has been appointed advertising and sales promotion manager for the Chattanooga Royal Co. At the same time, **STEVEN K. KITE-POWELL**, formerly field sales manager for barbecue grills, was appointed manager of the Barbecue Grill division.

RAYMOND V. HAHN, SR., has been named president of the Maytag West Coast company by action of its board of directors. He had been operating head of the firm for the past year as vice president and general manager. In a simultaneous move, **RAYMOND HAHN, JR.**, was named by the board to the

newly-created position of vice president and general sales manager. He had been sales manager for the southern division of the firm.

DONALD F. BALL is the new manager of Ford division's heavy truck sales department. He succeeds **JOHN F. MCLEAN, JR.**, who has been named executive assistant to the regional sales manager at Ford's Midwestern regional sales office in Chicago. Mr. Ball started with Ford in January 1954 as a truck sales engineer. He joined the Ford division heavy truck sales department when it was formed in April 1957 and became supervisor of the sales engineering section in November 1957. Mr. McLean has been with the company since 1946 and has held various executive positions with the truck sales department since 1949.

C. H. SWANSON has been appointed manager of domestic purchases and sales for Wanda Petroleum Co. He has been associated with Anchor Petroleum Co. for the past 12 years, resigning as sales manager of LPG products. Mr. Swanson will relocate in Houston, Texas, the home office of Wanda.

CHARLES R. LAIR is the new general manager of Chambers Manufacturing Corp. He joined Chambers after 17 years with Aveco Manufacturing Corp.'s American Kitchen division. In his new position, he will oversee all plant operations for Chambers products.

E. A. MURRAY has been appointed manager of the newly combined sales and service at the Worthington Corp. compressor and engine division. Since 1951, Mr. Murray has been serving as manager of compressor sales. Replacing him in his former capacity is **EVERETT L. CASE**. Mr. Murray joined Worthington in 1935 as a sales application engineer in the compressor sales department. In 1937 Mr. Case joined Worthington Corp.'s student training program.

Obit

A. C. HORNER, A. C. HORNER INC., Harrisburg, Pa.—national state director from Pennsylvania—passed away, February 26. **HORNER, 59**, died after a brief illness. He opened his own store in Harrisburg in 1945, having been previously associated with Burch Co. and Gas Oil Products, Inc.

CALENDAR

Coming events in the Industry

1959

March 30-31—Iowa LPGA Convention—Kirkwood Hotel, Des Moines, Iowa.

April 1-3—GAMA Annual Meeting—The American Hotel, Bal Harbour, Fla.

April 1-3—Southeast District LPGA Convention and Trade Show—Atlanta-Biltmore Hotel, Atlanta, Ga.

April 4—Oklahoma LPGA Mid-term Meeting—Western Hill Lodge, Sequoyah State Park, Wagoner, Okla.

April 6-8—Cuban LPGA Convention and Trade Show—Hotel Copacabana, Havana, Cuba.

April 7—Wisconsin LPGA Spring Convention—Whiting Hotel and Hardware Mutuals Bldg., Stevens Point, Wisc.

April 9-11—Western Liquid Gas Association Tenth Annual Convention and Trade Show—St. Francis Hotel, San Francisco, Calif.

April 12-13—Nebraska LPGA Annual Convention—Hotel Yancey, Grand Island, Neb.

April 12-14—Mississippi LP-Gas Dealers Association Annual Convention—Edgewater Gulf Hotel, Edgewater Park, Miss.

April 15-17—Eastern Canada District LPGA Convention and Trade Show—Mount Royal Hotel, Montreal, Canada.

April 19-20—Kansas LPGA 14th Annual Convention and Business Meeting—Allis Hotel, Wichita, Kansas.

April 20-23—Texas Butane Management Institute—Sponsored by the University of Texas—Fort Clark Guest Ranch, near Brackettville, Texas.

April 22-24—Natural Gasoline Association of America 38th Annual Convention—Baker & Adolphus Hotels, Dallas, Texas.

May 3-6—Liquefied Petroleum Gas Association 28th Annual National Convention and Trade Show—Conrad Hilton Hotel, Chicago.

May 4-6—National Tank Truck Carriers Inc. Annual Convention and Tank Truck Equipment Show—Shoreham Hotel, Washington, D. C.

May 20-22—Management Course Sponsored by Florida LPGA—University of Florida, Gainesville, Fla.

May 25-26—Montana-Wyoming LPGA Joint Convention—Northern Hotel, Billings, Mont.

May 25-26—Midwest L. P. Gas Engine School—Iowa State College, Ames, Iowa.

All associations are invited to send in dates of their forthcoming meetings for this calendar.

May 26—Maryland LPGA Annual Convention—Lord Baltimore Hotel, Baltimore, Md.

May 30-June 5—5th World Petroleum Congress—Coliseum, New York, N. Y.

June 3-5—Oklahoma LPGA Carburetion School—Oklahoma State University, Stillwater, Okla.

June 7-8—Butane-Propane Institute of Louisiana Convention—Belmont Motor Hotel, Baton Rouge, La.

June 7-9—Northwest District LPGA Convention—Portland, Ore.

June 7-9—Tennessee LPGA Annual Convention—Gatlinburg, Tenn.

June 8-10—Missouri LPGA and Illinois LPGA Joint Convention and Trade Show—Known as the Mo-Ill L. P. Gas Exposition—Sheraton-Jefferson Hotel, St. Louis, Mo.

June 14-16—Colorado LPGA Convention—Colorado Hotel, Glenwood Springs, Colo.

June 14-16—Arkansas LPGA Annual Convention.

June 24-26—Texas Butane Dealers Association Convention and L. P. Gas Market—Adolphus Hotel, Dallas, Texas.

August 2-4—Kentucky LPGA Annual Convention and Trade Show—Kentucky Hotel, Louisville, Ky.

August 2-4—Alabama LPGA Annual Convention—Birmingham, Ala.

August 3-5—Oklahoma L. P. Gas Service School—University of Oklahoma, Norman, Okla.

August 9-14—L. P. Gas Service and Carburetion Conference—Sponsored by the Florida LPGA—University of Florida, Gainesville, Fla.

August 16-18—Nevada, Idaho, Utah—Joint Convention and Trade Show—Holiday Hotel, Reno, Nev.

September 13-15—North Carolina LPGA Annual Meeting and Convention—Sir Walter Raleigh Hotel, Raleigh, N. C.

September 17—Pennsylvania LPGA Convention—Cocoa Inn, Hershey, Pa.

September 18-19—Florida LPGA Annual Convention—Golden Gate Hotel, Miami Beach, Fla.

October 5-7—American Gas Association 41st Annual Convention—Conrad Hilton Hotel, Chicago, Ill.

October 8-9—California Natural Gasoline Association 34th Annual Fall Meeting—Huntington-Sheraton Hotel, Pasadena, Calif.

October 12-14—Northeast Regional LPGA Convention and Trade Show—Sheraton-Park Hotel, Washington, D. C.

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WALDORF standard L-P Gas Hot Water Heater

A.G.A. APPROVED

Available in round 20, 30, 40, 50, and 75 Gallon Sizes. Also Table Top models.

For the Waldorf Profit Maker Story, write to, Dept. 4.



for leakproof, pressure-tight connections



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Heat and vibration-proof, non-solvent, will not shrink, crack or crumble. Makes all assemblies leak-proof and pressure-tight. Prevents rust, corrosion, joint seizure.

7 BASIC
BLENDS



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The super-penetrating
rust solvent

LOOSENS

rusted bolts, nuts,
screws, 'frozen' parts

Liquid Wrench works
fast...yet is absolutely
safe for all metals and
alloys.

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CLASSIFIED Advertising



SITUATIONS WANTED

SALES MANAGER FOR LARGE EASTERN L P Distributor with strong experience in retail and dealer development, interested in making change. Prefer New England area. 11 years' experience in L.P. as well as city gas and electric company. Degree in Business Administration and some engineering background. Will consider sales position with manufacturer or supplier. Reply Box 15, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

FAMILY MAN, 38, HAVE 8 YEARS' experience with Propane and Butane. Capable of setting up a new plant (bulk) including compressors, motors, pumps, tanks, piping, etc. Have State license for both truck delivery and appliance service. Wish responsible job in Southern Oregon or Northern or Central California. Reply Box No. 19, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

A JUNE GRADUATE OF THE GAS-FUEL Department, Southern Technical Institute, unit of Georgia Tech, with 10 years' previous experience, desires a position in technical or engineering type work. Service obligation fulfilled. Married. Will relocate. Write Box 262, Chamblee, Georgia.

POSITION WANTED WITH PROGRESSIVE LP-Gas company. College graduate desires position with growing LP-Gas concern as manager or assistant. Good experience in plant operation, administrative functions, sales, and engineering layouts. Position must offer an opportunity for advancement. Reply Box 20, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

HELP WANTED

HELP WANTED: EXPERIENCED MAN IN LPG bottles and bulk. Agency Agreement. Better opportunity if has railroad siding and spur. RESTRICTED TERRITORIES. WE FURNISH EVERYTHING. Tank car material available. Ross Refineries Inc., Belleville, Ill.

WANTED—AGGRESSIVE GAS APPLIANCE Salesman with gas fitting experience for steady job in growing community of 2200 in State of Washington. State age, experience, references, etc. Reply to Box 11, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

UNLIMITED

Employment Opportunities

Servicemen—Installation Men—Salesmen—Bulk Plant Managers

In our fast growing company we have many employment situations available for those with some experience in the LP-Gas Industry. Opportunities for advancement are constantly developing. We have over 90 districts and operate in the east coast states from Maine to Florida, and in Ohio, Kentucky and Indiana. If you have experience in service, installation, selling or bulk plant management send me your detailed employment history, and state the general area in which you would be interested in being assigned.

ROBERT GANTERT,
Personnel Manager

SUBURBAN PROPANE GAS CORPORATION
WHIPPANY, N. J.

HELP WANTED—Cont.

DISTRIBUTORS WANTED. FISK PROPANE TANK TRAILER distributorship available. East and S. Eastern States, Southern and North Central (West) States. Reply by letter only. Trade reference required. Fisk Trailer Sales, P. O. Box #3093, Madison 4, Wisconsin.

WANTED—EXPERIENCED GAS FITTER for steady job in growing community of 2200 in State of Washington. State age, experience, references, etc. Reply to Box 12, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

BUSINESS OPPORTUNITIES WANTED

WANTED TO BUY: PROPANE PLANTS Upper Mid-West, also used tanks 100# to 30,000 gallon size. Reply Box 99, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

BUSINESS OPPORTUNITIES OFFERED

LPG BULK PLANTS. WE SPECIALIZE in selling petroleum properties throughout Midwest. Have number desirable plants for sale. OLE BRODD, PETROLEUM MARKETERS, 605 Produce Bank Bldg., Minneapolis, Minnesota.

FOR SALE—TWO LP GAS COMPANIES in Illinois. Total cash earnings \$82,000.00 annually. Cash earnings after taxes will retire purchase price in 6 1/2 years. Total gallons 2,467,277. Equipment and plants are completely modern. Down payment for both companies \$155,000. Can be purchased separately. Federated Petroleum, Mel Putnam, 3228 University, Madison, Wis.

FOR SALE — TRUCKS - TRAILERS

HAUL MORE PROPANE AND LESS STEEL! LOAD AND UNLOAD FASTER! Save the annual Federal tax on trucks that weigh more than 13,000 lbs! Users praise the Nor-Tex 2500 WG Single Barrel Payload Special of 202B X-rayed material and stress relieved. Weighs only 12,890 lbs. completely equipped with High Flow Plumbing, Meter, Hose, Hose Reel, Fire Extinguisher and mounted on cab-forward truck with 108" cab to axle dimension. Increased capacity pump boosts deliveries to 50 GPM. Vapor manifold permits easy simultaneous loading and unloading of twin tanks with either compressor or liquid pump. These popular, carefully engineered and sleek designed Nor-Tex Single and Twin units are produced in four attractive models: The "Standard"—the "Custom"—the payload "Special" and the "DeLuxe." That's not all! Twin units, up to 2000 WG, are mounted on 85" cab to axle. Start hauling more gas and less steel. Do it profitably and in much less time. Phone, wire or write for prices now. NORTH TEXAS TANK CO., Denton, Texas. Phone DUpont 2-5416.

NEED A NEW OR USED

PROPANE BULK TRUCK?

Why don't you call a man who KNOWS trucks. Like to TRADE, makes quick delivery, has EASY TERMS, appreciates your business, and SAVES YOU MONEY. All sites in stock. Hundreds of SATISFIED CUSTOMERS the World Over.

Preston Grace

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Ph. 570—Batesville, Ark.

TRANSPORTS: SINGLE OR TWIN barrel; new or used; for lease, or sale on budget or rental sale plan. If you want maximum payload, with all of the latest equipment engineered to fit your truck, roads, and your hauling problem, get the

LMC PAYLOADER

Contact Lubbock Machine & Supply Co., Inc., Drawer 1589, Lubbock, Texas

FOR SALE—TRUCKS - TRAILERS - Cont.

USED PROPANE DELIVERY TRUCKS, 1200 GALLONS W.C. Presently in use and being replaced with larger units. United Petroleum Gas Co., 4820 Excelsior Blvd., Minneapolis 16, Minnesota.

FOR SALE: TWO LATE MODEL BUTLER single barrel Propane transports, 6608 W.C., Reyco tandems, with or without 205 International tractors. Excellent condition, ready to haul gas. Write or call Dixie Gas, Inc., Marks, Miss.

TRANSPORT. 5600 W.C. GALLONS. 250 lb. twin barrel 1953 Trinity. Like new paint, tires, and tandem. Excellent transportation and/or portable storage! Beverly 8-0450. Bob Ross Inc., 10918 South Western Ave., Chicago 43, Ill.

FOR SALE: 2 PROPANE TRANSPORTS. 5600 W. Gallons, \$3500.00 and \$3200.00. Block-ton Oil Co., Blockton, Iowa.

FOR SALE: USED PROPANE TRANSPORT, 6700 water capacity twin barrel. Perfect condition. New drums and lining, complete new torsion suspension and good rubber. Legal in all Western States. Will finance to right party. \$4750.00. Utah Colorado Gas Company, Box 348, Vernal, Utah.

FOR SALE—USED 4400 WATER GALLON propane transport. Perfect condition—tandem trailer—excellent rubber. A real bargain at \$3,000.00. North Arkansas L P Gas Co., Box 153, Harrison, Arkansas.

TRINITY BULK TRUCK UNITS

In stock, ready for immediate delivery. Buy early and avoid steel price increases.

Write, wire or phone RAY REEDY

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DELIVERY UNITS: SINGLE OR Twin Barrel. Our prices are competitive. We invite comparison between the equipment and price on our units with any competitive units. We believe we can give you the highest payloads per pound of gross vehicle weight. Write, wire, or phone.

Lubbock Machine & Supply Co., Inc.
Drawer 1589, Lubbock, Texas.

WE SAVE YOU MONEY

LOOK at this typical SPECIAL

BRAND NEW 1959 Chev. 2 ton with 1800 gal. twin propane tanks, PIPED COMPLETE with Viking pump, Neptune Printer Meter, 20# fire ext., 75' each filler & vapor hoses, ICC lights, full size rear cabinet & controls, READY TO USE—ONLY—

\$636.00 Down and 36 payments of \$181.45 including interest.

You SAVE over \$1,000.00 by buying instead of leasing. Other sizes (1400-2200 WG) & other makes new trucks (at FLEET PRICES) available. WE TRADE. We have USED TRUCKS & TANKS also. Call me anytime.

Preston Grace

WHITE RIVER DISTRIBUTORS

Ph. 570—Batesville, Ark.

CLASSIFIED ADVERTISING

FOR SALE—TRUCKS - TRAILERS - Cont.

TRADE WITH A TRADER! NEW & USED PROPANE TRUCKS

I'll trade with you on the phone! My ONE MAN SALES FORCE (myself) SAVES you the usual 10% sales commission, eliminates any mix-up on order, delivery date, financing, etc., yet this year, as in every year for past 10 years, I SELL MORE tank trucks than anyone else. If you have a trade-in, send me photo and description. Used and NEW units (1400-2200 WG) in stock for delivery NOW. EASY TERMS—(10% Down—36 Mos. on balance—I carry my own paper). DON'T BUY OR LEASE a unit until you CALL ME—Day or night. WHO AM I?

Preston Grace—Ph. 570
WHITE RIVER DISTRIBUTORS
Batesville, Arkansas

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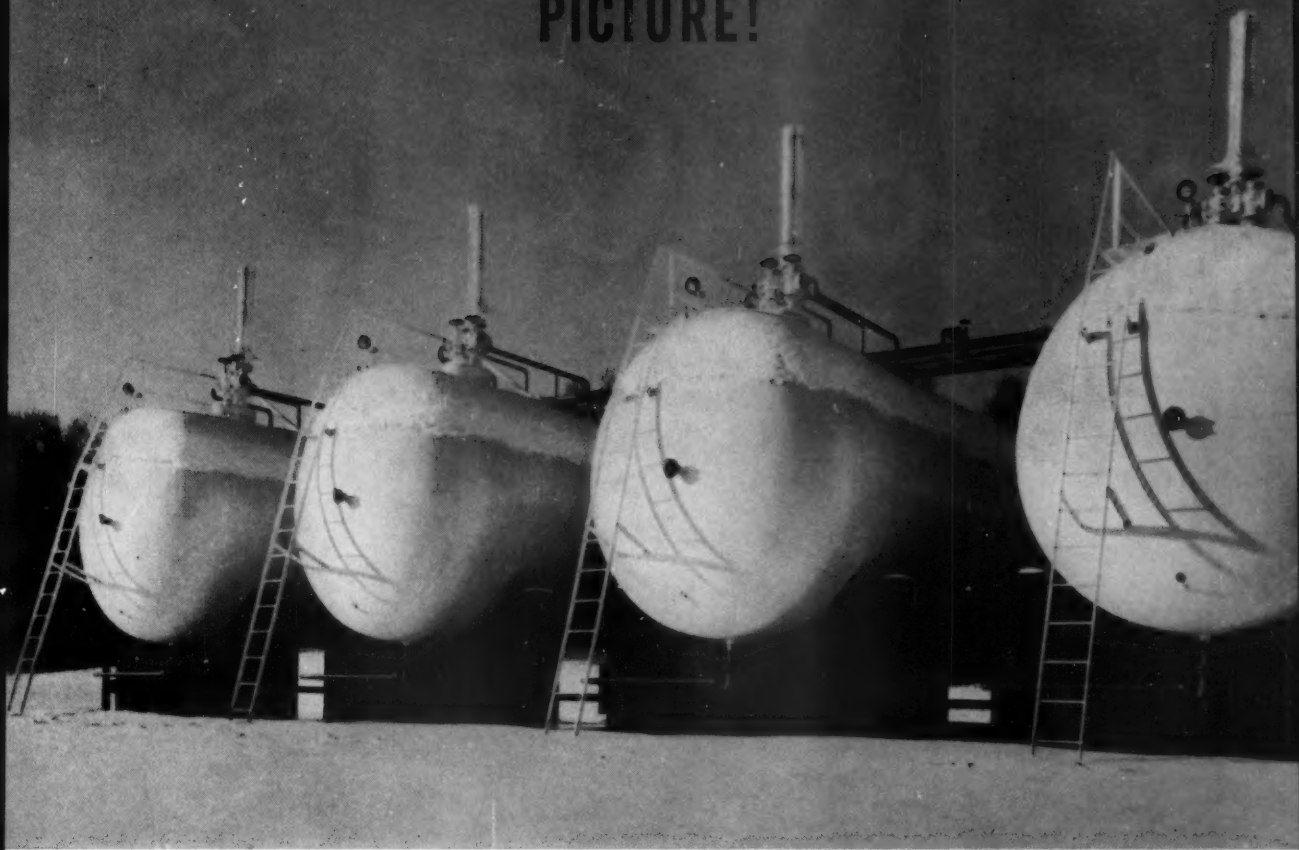
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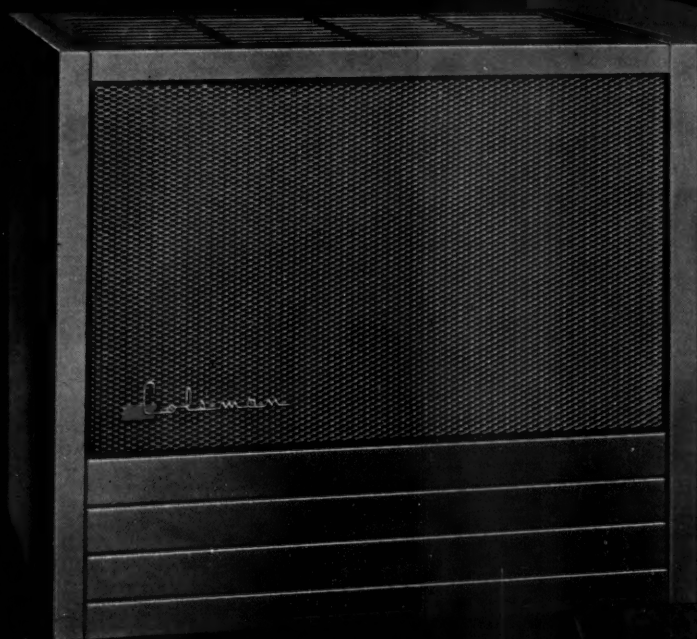
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